

WAYNE STATE UNIVERSITY

School of Business Administration
College of Education
College of Engineering
Graduate Division
Division of Health and Physical Education
Law School
College of Liberal Arts
College of Lifelong Learning
School of Medicine
Monteith College
College of Nursing
College of Pharmacy and Allied Health Professions
School of Social Work

 Bulletin 1977-79

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Academic Calendar¹ - 1977-79

Summer Quarter 1977

Quarter begins	Wed., June 22, 1977
Final registration	Wed., Thurs., June 22, 23
Last day for filing degree applications	Thurs., June 23
Classes begin	Mon., June 27
Independence Day Recess	Mon., July 4
Early registration for Fall Quarter	Mon., July 25 - Fri., Aug. 12
First Half-Quarter ends	Wed., Aug. 3
Second Half-Quarter begins	Thurs., Aug. 4
Labor Day Recess	Mon., Sept. 5
Begin 11th week schedule	Tues., Sept. 6
Classes end	Sat., Sept. 10
Quarter ends	Sat., Sept. 17, 1977

Fall Quarter 1977

Quarter begins	Sun., Sept. 18, 1977
Final registration	Thurs., Fri., Mon., Sept. 22, 23, 26
Last day for filing degree applications	Mon., Sept. 26
Classes begin	Thurs., Sept. 29
Early registration for Winter Quarter	Mon., Nov. 7 - Tues., Nov. 29
Thanksgiving Recess	Thurs., Fri., Sat., Nov. 24, 25, 26
Commencement	Tues., Dec. 6
Begin 11th week schedule	Mon., Dec. 12
Classes end	Sat., Dec. 17
Holiday Recess	Sat., Dec. 24 - Sun., Jan. 1, 1978
Quarter ends	Sat., Dec. 31, 1977

Winter Quarter 1978

Quarter begins	Sun., Jan. 1, 1978
Final registration	Tues., Wed., Thurs., Jan. 3, 4, 5
Last day for filing degree applications	Thurs., Jan. 5
Classes begin	Mon., Jan. 9
Early registration for Spring Quarter	Mon., Feb. 13 - Fri., Mar. 3
Begin 11th week schedule	Mon., Mar. 20
Classes end	Sat., Mar. 25
Quarter ends	Sun., Mar. 26, 1978

Spring Quarter 1978

Quarter begins	Mon., Mar. 27, 1978
Final registration	Tues., Wed., Thurs., Mar. 28, 29, 30
Last day for filing degree applications	Thurs., Mar. 30
Classes begin	Mon., Apr. 3
Early registration for Summer Quarter	Mon., May 8 - Fri., May 25
Memorial Day Recess	Mon., May 30
Commencement - School of Medicine	Sun., June 4
Begin 11th week schedule	Mon., June 12
Classes end	Sat., June 17
University Commencement	Tues., June 20
Quarter ends	Tues., June 20, 1978

Summer Quarter 1978

Quarter begins	Wed., June 21, 1978
Final registration	Wed., Thurs., June 21, 22
Last day for filing degree applications	Thurs., June 22
Classes begin	Mon., June 26
Independence Day Recess	Tues., July 4
Early registration for Fall Quarter	Mon., July 24 - Fri., Aug. 11
First Half-Quarter ends	Wed., Aug. 2
Second Half-Quarter begins	Thurs., Aug. 3
Labor Day Recess	Mon., Sept. 4
Begin 11th week schedule	Tues., Sept. 5
Classes end	Sat., Sept. 9
Quarter ends	Tues., Sept. 12, 1978

Fall Quarter 1978

Quarter begins	Wed., Sept. 13, 1978
Final registration	Thurs., Fri., Mon., Sept. 14, 15, 18
Last day for filing degree applications	Mon., Sept. 18
Classes begin	Thurs., Sept. 21
Early registration for Winter Quarter	Mon., Oct. 30 - Fri., Nov. 17
Thanksgiving Recess	Thurs., Fri., Sat., Nov. 23, 24, 25
Begin 11th week schedule	Mon., Dec. 4
Classes end	Sat., Dec. 9
Commencement	Tues., Dec. 12
Holiday Recess	Sat., Dec. 23 - Mon., Jan. 1, 1979
Quarter ends	Sun., Dec. 31, 1978

Winter Quarter 1979

Quarter begins	Mon., Jan. 1, 1979
Final registration	Wed., Thurs., Fri., Jan. 3, 4, 5
Last day for filing degree applications	Fri., Jan. 5
Classes begin	Mon., Jan. 8
Early registration for Spring Quarter	Mon., Feb. 12 - Fri., Mar. 2
Begin 11th week schedule	Mon., Mar. 19
Classes end	Sat., Mar. 24
Quarter ends	Sun., Mar. 25, 1979

Spring Quarter 1979

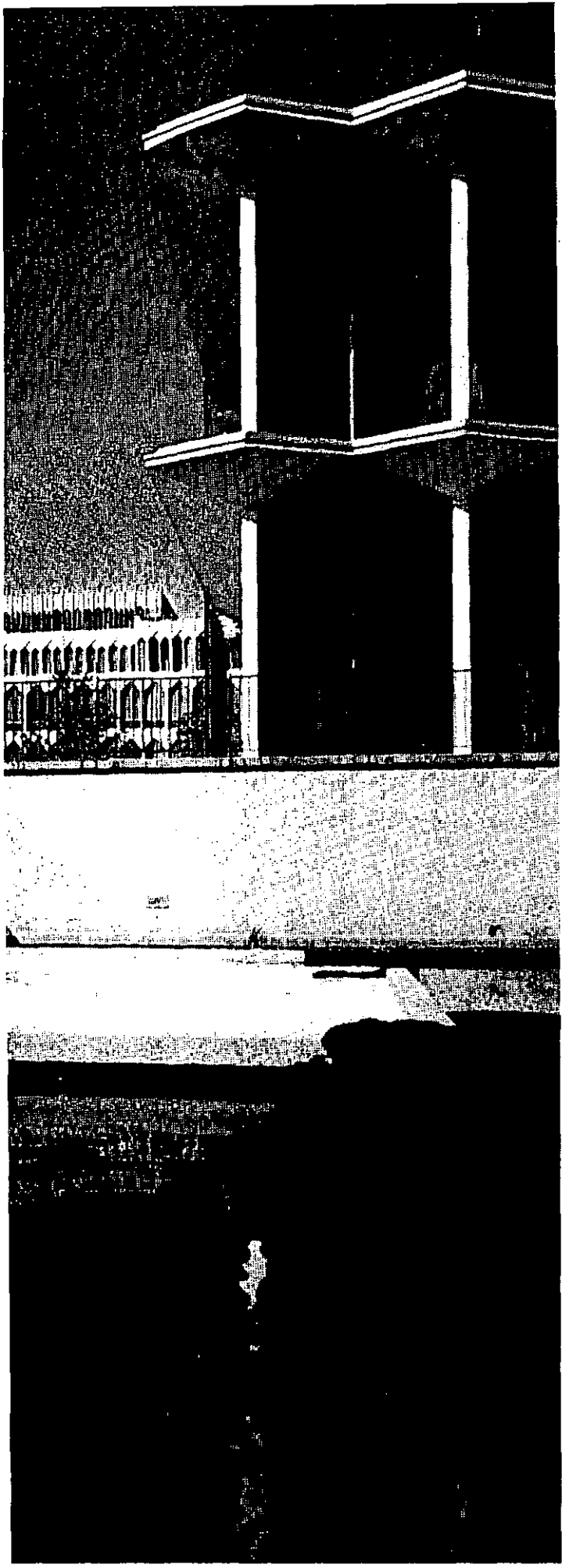
Quarter begins	Mon., Mar. 26, 1979
Final registration	Tues., Wed., Thurs., Mar. 27, 28, 29
Last day for filing degree applications	Thurs., Mar. 29
Classes begin	Mon., Apr. 2
Early registration for Summer Quarter	Mon., May 7 - Fri., May 25
Memorial Day Recess	Mon., May 28
Commencement - School of Medicine	Sun., June 3
Begin 11 week schedule	Mon., June 11
Classes end	Sat., June 16
University Commencement	Tues., June 19
Quarter ends	Tues., June 19, 1979

¹ The Law School (see page 204) and the School of Medicine (see page 458) maintain academic calendars different from this. See their respective sections for details.

This publication is for informational purposes and is neither a contract nor an offer to contract. The University reserves the right to change any provision or requirement at any time without notice.

General Information

Contained in the following section are: general rules and regulations of the University, specific regulations of the Graduate Division, and descriptions and locations of University student services. For additions, amendments, and specific applications of the following regulations, consult the individual school and college sections of this bulletin.



Foreword

Wayne State University is a complex graduate university and one of the largest single-campus institutions in the United States. It receives its primary support from the taxpayers of the State through annual appropriations from the State Legislature. It is one of the fifteen public four-year institutions of the State of Michigan.

In common with other public colleges and universities and with American education in general, Wayne State University has the obligation to serve in the several capacities of teaching, research, and community service.

Through its teaching, the University undertakes to provide each student at undergraduate and graduate levels with experiences leading to a broadening of intellectual horizons, to a satisfying, meaningful life and to continuing intellectual growth exemplifying a truly liberal education. The programs of the professional schools and colleges of the University are designed to prepare the student for the proficient and successful practice of a profession and for involvement in and increasing usefulness to society. At the graduate level, especially at the doctoral level, the University is concerned with producing potential leaders in a wide spectrum of social, economic, scientific, educational and cultural fields.

Closely related to its teaching function are the University's widespread research efforts. Both individual and team inquiries in many disciplines constitute a major University concern and responsibility. Graduate study places emphasis on creative scholarship, original research, and the development and utilization of research techniques.

Located in the heart of a great metropolitan center, the University makes use of the vast social, cultural, and scientific resources of this entire area to enrich its program and to spur its research. Conversely, through its research, consulting, and other services, the University endeavors to carry out into the community the benefits of the knowledge acquired in classroom and laboratory.

As a public institution of higher learning, Wayne State University has from its incorporation been mindful of its role in providing appropriate services to the local, state and national communities, and indeed to the world at large. Increasingly in recent years the University has been acutely conscious of its special obligations of service to urban society and especially to the Detroit metropolitan area and its inner-city. Although this responsibility is inherent in the programs of all of the schools and colleges, the University has also developed an extensive and diversified College of Lifelong Learning to facilitate and coordinate its large commitments to special urban programs, to adult education, to the cultural growth of the metropolitan area, to the service of education, government and business, and to the citizenry at large.

More than 100,000 alumni have earned degrees. More than 75,000 of them live in the state, 66,000 in the Detroit metropolitan area, and 25,000 within the city limits of Detroit. Over twenty-eight percent of all degree holding adults in the metropolitan area are Wayne State University alumni.

The early history of the University is an account of originally unrelated colleges and schools which were united in 1933 into a single institution, Wayne University, under the control of the Detroit Board of Education. In 1956 this institution became Wayne State University by formal action of the Governor and Legislature of Michigan. The following specific events are among the most significant in the University's first century of development.

- 1868 The Detroit Medical College, forerunner of the School of Medicine, was established.
- 1881 The Detroit Normal Training School, forerunner of the College of Education, was established.
- 1917 The Detroit Junior College, offering a two-year program in general education, was established in "Old Main" and later developed into the College of Liberal Arts.
- 1923 The Detroit Normal Training School became a four-year degree-granting institution under the name of Detroit Teachers College. The first degrees were granted in 1924. The Detroit Junior College became the College of the City of Detroit with four-year degree programs. The first degrees were conferred in 1925.
- 1924 The College of Pharmacy was organized.
- 1930 The first regular graduate courses were offered in Liberal Arts and Education. The first Master's degrees were conferred in 1932.
- 1933 The College of Engineering and the Graduate School were established.
- 1933 The Colleges of Liberal Arts, Education, Engineering, Medicine and Pharmacy and the Graduate School were united by action of the Detroit Board of Education into a university organization, temporarily called the Colleges of the City of Detroit.
- 1934 The name Wayne University was adopted, taken from Wayne County, and ultimately from General Anthony Wayne.
- 1935 The School of Public Affairs and Social Work was organized. In 1950 it became the present School of Social Work.
- 1937 The Law School, established in 1927 as Detroit City Law School, came into the University.
- 1945 The first doctoral programs were authorized in the fields of Chemistry, Physiological Chemistry, and Education.
- 1945 The College of Nursing, which began as a program in the College of the City of Detroit, became a separate college.
- 1946 The School of Business Administration, originating in the College of Liberal Arts, became the tenth academic unit in the University.
- 1956 Wayne University became Wayne State University by Act 183 of Michigan Public Acts of 1956.
- 1959 Monteith College was established.

- 1959 Wayne State University became a constitutionally established University by popularly adopted amendment to the Michigan Constitution.
- 1964 The Division of Urban Extension was established.
- 1973 The College of Lifelong Learning was established as successor to the Division of Urban Extension.
- 1974 College of Pharmacy and Allied Health Professions was formed from merger of the College of Pharmacy and the Division of Allied Health Professions, School of Medicine.

Location

A total of one hundred five buildings provide housing for the service, instructional and research needs of the University and its students and staff. Most academic and service units of the University are located on the main campus in the heart of Detroit, largely bounded by York Street on the north, Woodward Avenue on the East, Forest Avenue on the south and Trumbull Avenue on the west. The major classroom, laboratory, library and other academic buildings are located east of the Lodge Expressway while the athletic and recreational facilities are mostly on the west side of the Expressway.

The School of Medicine and related buildings are located a short distance south and east of the main campus in the Detroit Medical Center. The downtown campus, with the principal building at 1400 Chrysler, provides additional instructional facilities for Medicine and the College of Pharmacy and Allied Health Professions.

Certain smaller instructional and service units are located in other parts of the metropolitan area. For example, the College of Lifelong Learning has its main facilities on West Grand Boulevard but also operates an Extension Center in Southfield. The program in Mortuary Science is located on West Alexandrine Avenue.

Organization

The general governance of Wayne State University is constitutionally vested in the Board of Governors, consisting of eight popularly elected members and the President of the University, who is named by the elected members. The President is the chief executive officer of the University and is charged by the Board of Governors with responsibility for its administration.

For educational and administrative purposes the University is organized into major academic units — schools, colleges, divisions, centers and institutes. The following schools and colleges offer degree programs in their respective areas and together constitute the heart of the University:

- School of Business Administration
- College of Education
- College of Engineering
- Office of Graduate Studies
- Law School
- College of Liberal Arts

College of Lifelong Learning
School of Medicine
Monteith College
College of Nursing
College of Pharmacy and Allied Health Professions
School of Social Work

The Dean of the college or school is its chief executive officer. More than half the colleges and schools are organized into departments or divisions, each administered by a chairman (or head). Academic standards, curricular development, changes in courses and similar academic matters are the primary responsibility of the faculty and dean of the college or school, although these matters are subject to review by the Provost and by the President, and, whenever they involve major educational policy decisions, by the University Council.

The Office for Graduate Studies is the central unit for the supervision and encouragement of graduate work in the University and has basic responsibility for the improvement of existing programs and the approval of new graduate programs. Except for applicants and candidates for the Doctor of Philosophy degree, the detailed supervision of graduate students' work is conducted by the colleges and schools, and where appropriate by the departments.

All degrees are granted by the University through the colleges and schools, except that the Dean for Graduate Studies with the advice of the Graduate Council recommends candidates for the Doctor of Philosophy degree.

Credit courses are also offered by the Division of Health and Physical Education and the Department of Mortuary Science. The College of Lifelong Learning provides, in addition to its own credit courses, extension services for the off-campus credit programs of the other colleges and schools. Since the University does not have a separate evening program or separate summer session, the colleges and schools and instructional divisions have comprehensive responsibility for degrees and degree programs whenever they are offered.

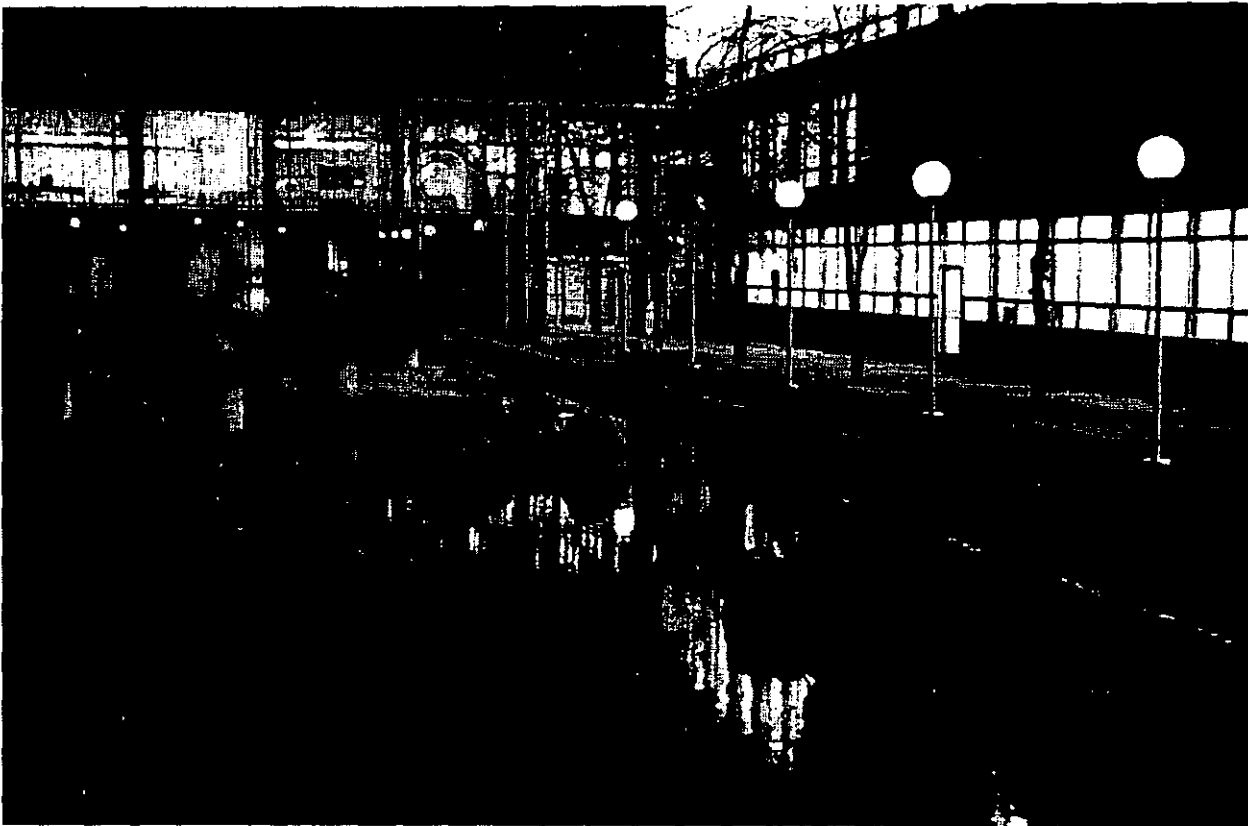
Wayne State University is accredited as a doctoral degree-granting institution by the North Central Association of Colleges and Schools. In addition, some 38 specific programs and curricula are accredited individually by the several professional accrediting associations. The courses, programs and degree requirements of the several units are described in the pages of this Bulletin.

Non-credit courses, seminars and programs are offered primarily through the following units:

College of Lifelong Learning
Center for Urban Studies
Institute for Continuing Legal Education*
Center for Black Studies
Center for Study About Peace and War
Center for the Administration of Justice
Institute of Labor and Industrial Relations**
Institute of Gerontology**

*Sponsored jointly with the University of Michigan and The Michigan Bar Association.

**Sponsored jointly with the University of Michigan.



UNDERGRADUATE ADMISSION

The Office of Admissions is located in 116 Administrative Services Building, 5950 Cass, Detroit, Michigan 48202. Admissions counselors are available for personal conferences to aid the prospective student. Telephone, 577-3577.

APPLICATION

1. An official *Application for Undergraduate Admission* with a \$15.00 application fee **must** be filed in the Office of Admissions before any consideration regarding admissibility can begin. The application blank may be secured from the Office of Admissions. High school students in Michigan can secure an application from their high school counselor. Michigan community college students may obtain an application at the community college.

2. The filing deadline for each quarter is shown on the instruction sheet which is part of the application material. The completed application, including transcripts and any other records necessary for admissions consideration, must be in the Office of Admissions on or before that date to ensure adequate time for processing. Applications received after the deadline will be processed as rapidly as possible but no decision can be guaranteed.

WHEN TO APPLY FOR ADMISSION

1. Students still in high school may apply after completion of their junior year.
2. Out-of-state applicants (including transfer students not currently attending another college) who do not plan to enroll in another college or university before entering Wayne may apply up to eleven months in advance.
3. Applicants presently registered at another college or university should apply early in the last term prior to transfer.

ADMISSION REQUIREMENTS

1. Admission to Wayne is selective. In order to qualify for admission an applicant must present scholastic and personal records indicating good preparation and ability to undertake a college degree program. Graduates of accredited Michigan high schools who present an average in the B range in the academic subjects are usually admissible.

2. Transfer students who have completed at least a year of college work (thirty semester credits or forty-five quarter credits) at an accredited institution with a C average will be considered for admission on the basis of that work. For those students who have completed less than an academic

year of credit at another institution, the high school record will be used as an additional factor in determining admissibility.

3. Applicants who are at least eighteen years of age, who lack high school diplomas and who have been out of high school at least six months should consult with an admissions counselor if they wish to be considered for admission to a degree program.

4. In order better to advise students, some schools and colleges require all entering students, whether freshmen or transfers from other institutions, to take the *College Entrance Examination Board Scholastic Aptitude Test (SAT)*. If the applicant's qualifications do not meet the criteria stated in paragraphs 1 and 2 above, test scores will be determinative in the decision on admissibility. The American College Test (ACT) can also be taken as an admissions entrance examination.

College of Liberal Arts: If the student has not taken the SAT prior to admission he must take the test during the first quarter in which he has registered.

Project 350: Special admissions criteria and procedures apply under this program. Contact the special counselor in the Office of Admissions for information. See also descriptive information under Special Student Service Programs, page 35.

TRANSFER ADMISSION REQUIREMENTS

1. Transfer students are considered for admission without entrance examinations if they meet the following minimum conditions:

a. Completion of at least a year of college work (thirty semester credits or forty-five quarter credits) at an accredited collegiate institution with a cumulative C average, or

b. Students who have attended unaccredited institutions should consult with an admissions counselor to determine admissibility.

c. For those students who have completed less than an academic year of credit at another institution, the high school record will be used as an additional factor in determining admissibility.

2. In order to qualify for admission an applicant must present scholastic and personal records clearly indicating good preparation and ability for continuing a college degree program. If an applicant is not clearly admissible, an opportunity to take the *College Entrance Examination Board Scholastic Aptitude Test (SAT)* may be given. Examination scores are not to be construed as an adequate substitute for good achievement in course work.

3. The student who wishes to enter with advanced standing credit from any college outside of Wayne State is asked to

submit an *Application for Undergraduate Admission*. Upon forwarding the application to the University Office of Admissions, he should request each college he has attended to send a transcript to the Admissions Office. The student who is in good standing with an acceptable record at an accredited college will ordinarily be admitted.

For additional undergraduate admissions information relating to special requirements and professional admission in certain colleges, please refer to the following school or college sections: *Business Administration* — page 40; *Education* — page 63; *Engineering* — pages 128 and 143; *Lifelong Learning* — pages 445 and 446; *Nursing* — pages 516 and 521; *Pharmacy and Allied Health Professions* — pages 533, 541, 554 and 555; *Social Work* — pages 577 and 587; *Department of Mortuary Science* — page 600.

RECOMMENDED HIGH SCHOOL PREPARATION

See individual schools and colleges for specific high school recommendations.

ADVANCED PLACEMENT TESTS

Superior performance in the College Entrance Examination Board Advanced Placement Tests will entitle an entering freshman to consideration for advanced placement and/or advanced standing credit up to a maximum of a full year's work in the areas covered by the examination.

These areas include American history, European history, biology, chemistry, English, French, German, Latin, Spanish, mathematics, and physics. Advanced placement and/or advanced standing credit will be assigned in each case by the department concerned after a review of each examination and after an interview with the student, if that is considered necessary. Interested students should contact the Counseling and Testing Office, 334 Mackenzie Hall.

COLLEGE-LEVEL EXAMINATION PROGRAM

The College Entrance Examination Board also sponsors the College-Level Examination Program which affords students and prospective students the opportunity to demonstrate their academic proficiency at the freshman-sophomore college level in various areas and in specific subjects whether or not they have had previous formal college instruction in the materials covered by the tests. As described by CEEB, the General Examinations are intended to provide a comprehensive measure of undergraduate achievement in the five basic areas of the liberal arts: English composition, humanities, mathematics, natural sciences, and social sciences. They are not intended to measure advanced training in any specific discipline, but rather to assess a student's knowledge of fundamental facts and concepts, his ability to perceive relationships, and his understanding of the basic principles of the subject. The content of the General Examinations is similar to the content of those subjects ordinarily included in the program of study required of most general education students in the first two years of college.

The Subject Examinations are essentially end-of-course tests developed for widely taught undergraduate courses. They measure understanding of basic facts and concepts, as well as the ability to apply such understanding to the solution of problems and the interpretation of materials. Questions that require of a student only rote recall are avoided.

Superior performance in these examinations will be considered as a basis for granting advanced placement and/or advanced standing credit as well as for waiving parts of the general education requirements of the College. For further information, please consult advisers, school or college offices, or the University Counseling Services.

TRANSFER OF CREDITS — UNDERGRADUATE

When applicable to a specific Wayne undergraduate degree program, acceptable course credits earned at other institutions of higher education are transferred and recorded on the student's academic record at Wayne, but the grades earned in these courses are not transferred or recorded. Consequently, only the grades earned in the University are used in computing the honor point grade average for assessing the quality of work completed in residence here.

College of Education, College of Liberal Arts: After a total of ninety-six quarter credits has been accepted by the College from any source, additional credit cannot be transferred from a community college. An exception to this policy may be made in the Vocational and Applied Arts Education curriculum area of industrial education.

College of Pharmacy and Allied Health Professions: Only those courses that are applicable to the curriculum of the College will be accepted.

POST-BACHELOR ADMISSION

Holders of bachelor's degrees from accredited institutions who wish to elect only courses open to undergraduate students (numbered below 0700) are advised to apply for post-bachelor status. Courses elected while in post-bachelor status will not count toward graduate credit but may be used to fulfill prerequisite requirements for graduate admission. Please check with the Admissions or Registrar's Offices for other regulations regarding this status.

INTERNATIONAL STUDENTS

A student from another country desiring admission should file an *Application for Admission to Undergraduate Studies for Applicants from Other Countries* or an *Application for Admission to Graduate Studies for Applicants from Other Countries* with the Office of Admissions. Full instructions for admission procedure, academic requirements, and language standards are included with the application forms. A student from a non-English speaking country must take an English Language Proficiency Examination prior to admission. Arrangements are to be made through the Office of Admissions.

For further information on international student admission to the Graduate Division, see page 21.

READMISSION

Following an Interruption in Attendance

Undergraduate students who were previously admitted and registered at Wayne State University and whose attendance has been interrupted need not reapply at the Office of Admissions. It is strongly recommended that, if the student left in good standing, he report to the college of his choice for any special instructions regarding his return to classes. A copy of the student's last cumulative record should be obtained from the Records Office before meeting with college officials.

EQUALITY OF OPPORTUNITY

No person shall, on the basis of race, color, national origin, or sex be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity sponsored by Wayne State University.

Fees¹

Listed below are the fees currently in effect.¹ They are subject to change at any time without notice by action of the Board of Governors. For fees in effect at the time of registration, consult the official University *Schedule of Classes*, published in advance of each quarter.

Undergraduate Fees per quarter

Credit Hours	Freshmen and Sophomores ¹		Juniors, Seniors and Post-Bachelors ¹	
	Residents	Non-Res. ²	Residents	Non-Res. ²
1-4	\$122.00	\$292.00	\$137.00	\$317.00
5	145.50	360.50	162.50	392.00
6	169.00	429.00	188.00	467.00
7	192.50	497.50	213.50	542.00
8	216.00	566.00	239.00	617.00
9	239.50	634.50	264.50	692.00
10	263.00	703.00	290.00	767.00
11	286.50	771.50	315.50	842.00
12-16	310.00	840.00	341.00	917.00
Each credit over 16	22.50	67.50	24.50	74.00

¹ Significant exceptions in fee policy or in fees are made by the Law School (see page 209), the School of Medicine (see page 463), the School of Social Work (see page 581), the College of Lifelong Learning (see page 447) and the Department of Mortuary Science (see page 601). See their respective sections for details.

² See explanation of residency below.

Graduate Fees per quarter

Credit Hours	Resident	Nonresident ²
1-4	\$168.00	\$378.00
5	197.50	468.00
6	227.00	558.00
7	256.50	648.00
8	286.00	738.00
9	315.50	828.00
10	345.00	918.00
11	374.50	1008.00
12-16	404.00	1098.00
Each credit over 16	28.50	89.00

Paying Fees — Checks or money orders should be made payable to Wayne State University. Checks are accepted subject to collection. If a check is not honored by the bank, the student will be notified of the action he must take to complete his registration and of any liability he has incurred. The applicable Late Registration Fee will be assessed when the check is replaced with a valid payment.

Master Charge Cards are accepted. For details inquire at the Cashier's Office.

Installment Payments — Payment may be made in installments as follows: an initial payment of not less than \$50.00 during an Early Registration period or not less than the resident rate for four credits during a Final Registration period is required; the balance is due in two equal installments, due at the end of the third and seventh weeks after the first day of classes. A late payment assessment of \$5.00 will be added to any account whenever *either* of the installments are not paid on time.



Late Registration— A late registration fee, which is non-refundable, is charged for any registration after the end of the official registration period. The fee is assessed as follows:

during the first two weeks of classes..... \$10.00
thereafter 25.00

Course Materials Fees— A course materials fee may be assessed for registration in certain courses, principally courses with associated laboratory work, where a relatively large portion of instructional costs is due to the necessary use of consumable resources.

Special Examination Fee— The fee for the examination taken to establish credit by examination is \$5.00 per credit. Examinations will be approved under provisions established by each school or college. Credit allowed on the basis of transcript entries from another institution and for which a special examination is not required will not come under this rule.

Other Fees— For students registering for music courses taken as private lessons, there is an additional fee of \$35.00 for one or two credits. For three credits, the additional fee is \$70.00. In the event of withdrawal the student will receive a refund of the difference between the fee assessed and the cost to the University of any lessons provided, but in all cases a minimum of \$5.00 will be retained by the University.

For students registering for certain courses in physical education, there is an additional fee of \$3.00 for storage basket and lock, or a \$7.00 fee for basket, towel exchange, and lock. This fee is not refundable. For some activities there is an additional charge for equipment rental or use of special facilities.

Students may refer to the official University *Schedule of Classes* for the particular courses in music or in physical education that require payment of *other fees*.

Application for Admission Fee— Each application for admission to the University must be accompanied by a non-refundable application fee of \$15.00.

Holds on Records— A "hold" will be placed on the records of any student who has past due indebtedness to the University. While the hold is in effect, re-registration for a subsequent quarter will not be permitted, transcripts of work done at the University will not be furnished, information will not be given to prospective employers or others, nor will a diploma be issued.

Student grades may be recorded but are not considered as being earned nor is a degree earned until the student has paid all unpaid tuition as well as any money borrowed from student loan programs.

RESIDENCY

These regulations and review procedures are established by Wayne State University for tuition and fee purposes. The University recognizes that a variety of definitions exist for the term "resident" and applicants are encouraged to give careful

attention to the following regulations which define residency for University purposes.

Regulations

1. No student is eligible for residence classification unless (s)he or, if (s)he is a minor, the person from whom (s)he derives residence (pursuant to paragraph six below), meets the qualifications prescribed herein for residence and has lived in this state continuously for at least six months immediately prior to the first day of classes of the quarter for which resident classification is being sought, save for temporary absences as defined in paragraph two below.

2. For the purpose of these regulations, the terms "residence" and "domicile" are synonymous. In general domicile is the place where a person actually resides with the intention of making it the person's true, fixed, permanent home, and principal establishment, and to which whenever (s)he is temporarily absent, (s)he has the intention of returning. Full time attendance at school outside Michigan and initial enlistment in a military service are examples of temporary absences. Other absences for more than six months will be presumed to be nontemporary. The fact of physical presence at the dwelling-place and the intention to make it a home must concur and the intention must be to make a home in fact in a certain place, and not an intention to acquire a domicile in order to obtain the benefit of the legal consequences of having a domicile there. A person may have but one domicile at a time, and a domicile once established continues until it is superseded by a new domicile.

3. Normally, the sojourn in this state of a student from another state for the primary purpose of attending school is not residence, and it is presumed that a non-resident at the time of his or her enrollment continues in that classification throughout his or her presence as a student, except where it can be established that his or her previous domicile has been abandoned and a new one established. If a student enrolls in undergraduate school for more than eight credit hours, or in graduate school for more than six credit hours, or in law school for more than twelve credit hours in any one full length term, within six months after arrival in Michigan, it is normally presumed that the student's sojourn is for the purpose of attending school and not to establish domicile.

4. The following facts, although not conclusive, have probative value in support of a claim for residence classification: acceptance of an offer of permanent employment in this state; former residence in the state and the maintenance of significant connections therein while absent; economic, social compulsion causing a person to abandon a former residence and acquire residence in the state with attendance at the University only an incident to such residence.

5. The following facts, standing alone, are not accepted as sufficient evidence of domicile: employment by the University as a fellow, scholar, assistant, or in any position normally filled by students; a statement of intention to acquire a domicile in this state; voting or registration for voting; the lease of living quarters; payment of local and state taxes; automobile registration; driver's license; or continued presence in Michigan during vacation periods.

6. For purposes of these regulations, the age of majority is 18 years. A minor does not have the capacity to establish his or her own domicile. Normally, the domicile of a minor follows:

- a. That of the parents or surviving parent;
 - b. That of the parent to whom custody of the minor has been awarded by a divorce or other judicial decree; or
 - c. That of the parent with whom the minor in fact makes his or her home, if there has been a separation without a judicial award of custody; or
 - d. That of an adoptive parent, where there has been a legal adoption, even though the natural parents or parent may be living; or
 - e. That of a "natural" guardian, such as grandparent with whom the minor in fact makes his or her home, where the minor has permanently left his or her parental home and reasonable expectation of substantial financial support from the parents has been dissolved.
- f. If a Michigan resident parent or guardian of a minor moves his or her residence to another state, the minor shall remain eligible for residence tuition status as long as (s)he continues to attend school regularly in this state.
7. Where a general guardian has been appointed by the state of the ward's domicile, at the time of appointment the ward's domicile presumption remains in that state. The appointment by a Michigan court of a resident guardian of a minor not domiciled in this state at the time of appointment has no effect upon the domicile of the ward.
8. A minor who has permanently left his or her parental home, and who has no reasonable expectation of substantial financial support from his or her parents or legal guardian, etc., may qualify for residency status as if (s)he were of majority age.
9. An alien student may apply for resident status under one or more of the foregoing regulations in the same manner as a citizen, if (s)he has been lawfully admitted to the United States for permanent residence in accordance with all applicable provisions of the laws of the United States and has obtained a permanent visa.

Review Procedures

1. Initial Classification and Appeal

- a. Registering under proper residence and advising the Office of Admissions of changes in circumstances which might affect residence classification is the responsibility of the student. Questions concerning a student's residency should be raised initially with the Office of Admissions.
- b. A student may challenge the initial classification by filing an Application for Residence Classification with the Registration Office, where such forms are available. Except for delays caused by University personnel, Applications for Residence Classification must be filed within the quarter for which resident classification is claimed.
- c. A student may appeal from the administrative classification by filing a written notice of appeal with the Registrar's Office *within sixty days after the student is notified of the*

administrative classification. The notice of appeal shall include reasons for the appeal, the period for which resident status is claimed, and a complete statement of the facts on which the appeal is based, together with supporting affidavits or other documentary evidence. Failure to file notice within sixty days shall constitute a waiver of any right to appeal from the administrative classification.

d. The Office of the University Counsel shall review the appeal and render a decision.

e. If erroneous classification has occurred, a refund for the appropriate period and amount will be made.

2. Reclassification and Appeal

a. A student, having been initially classified a non-resident and having decided that (s)he has since become a resident, may initiate action in the same manner as for challenging an initial classification pursuant to 1(b) above.

b. If the petitioner is dissatisfied with the finding of the Registrar's Office, (s)he may appeal to the Office of the University Counsel in the same manner as prescribed for appeals from administrative classification as in 1(c) above.

3. Erroneous Classification

If any student having been classified as a resident student shall be determined to have been erroneously so classified, (s)he shall be reclassified as a non-resident student, and if the cause of his or her incorrect classification shall be found to be due to any material concealment of facts or false statement made by him or her at or before the time of his or her original classification, (s)he shall be required to pay all tuition fees which would have been charged to him or her except for such erroneous classification and shall be subject also to appropriate discipline in accordance with University policies.

TRANSCRIPT POLICY

A fee of \$1.00 is charged for each official or unofficial transcript. The student or alumnus may request a transcript in person or by mail. Telephone requests will not be accepted. To make a request in person, a transcript request form must be completed at the Records Office and the \$1.00 fee paid at the Cashier's Office, Administrative Services Building. Mail requests should include the student's name, I.D. Number (if known), date of birth, last quarter of attendance at Wayne, name and address of where the transcript is to be sent, and a \$1.00 check or money order made payable to Wayne State University for each transcript.

CANCELLATION OF FEE CHARGES

The tables for cancellation of fees are subject to change at any time without notice by action of the University Administration. For cancellation tables in effect at the time of registration, consult the official University *Schedule of Classes*, published in advance of each quarter.

If a student notifies the Registration Office in writing of his withdrawal or of a reduction in his program, he shall be entitled to a cancellation of the fees applicable to the portion of the program which he has dropped, as follows:

Amount of Refund

For Classes Meeting 26 or More Weeks

Withdrawal through the end of the sixth week of classes	100% less \$20.00*
Withdrawal during the seventh through twelfth week of classes	60%
Thereafter	No Refund

For Classes Meeting 15-25 Weeks

Withdrawal through the end of the third week of classes	100% less \$20.00*
Withdrawal during the fourth through sixth week of classes	60%
Thereafter	No Refund

For Classes Meeting 8-14 Weeks

Withdrawal through the end of the second week of classes	100% less \$20.00*
Withdrawal during the third and fourth week of classes	60%
Thereafter	No Refund

For Classes Meeting 4-7 Weeks

Withdrawal through the end of the first week of classes	100% less \$20.00*
Withdrawal during the second week of classes	60%
Thereafter	No Refund

For Classes Meeting Less Than 4 Weeks

Withdrawal on or before the first day of the class	100% less \$20.00*
Withdrawal on the second day of the class	60%
Thereafter	No Refund

For changes from one section to another having different beginning or ending dates, consult the *Schedule of Classes*.

A notice of withdrawal or reduction sent by mail will be considered effective at the time shown by the postal cancellation, if legible, for the purpose of adjusting fees. Saturday and Sunday postal cancellations are accepted as of the preceding Friday.

Special Fee Adjustments—The Registrar is authorized to make adjustments in the application of the policy stated above when, in his judgment, unusual circumstances warrant such action. Circumstances which may warrant special consideration include the death or serious illness of the student.

The student who wishes to have his case reviewed must make application and submit documentation at the Office of the

* Twenty dollars is withheld only when the student withdraws from all classes. In cases of complete withdrawal where an advance tuition deposit is required of the student as a condition of admission, 100% less the advance tuition deposit is the allowable cancellation.

Registrar, Room 165 Administrative Services Building, either in person or by mail. *It is the responsibility of the student to make sure that all required documents are submitted before classes end for the term concerned.*

Registration

Each student except those in the annual medical program is required at the beginning of each term of attendance to register according to the procedure and schedule published in the official *University Schedule of Classes*. Registration must be completed before the student may attend classes. For registration dates, the student should consult the *Schedule of Classes*, available at the Registration Office.

Students wishing graduate credit are cautioned not to register "post-degree." This is an undergraduate classification in which graduate credit may not be earned.

UNIVERSITY REQUIREMENT IN AMERICAN GOVERNMENT

All undergraduate students, as a prerequisite to being graduated from Wayne State University, are required to have completed satisfactorily a course in the principles of American government. The courses and course sequences listed below and similar courses completed in other colleges and universities are applicable to this requirement. Credit for these courses may be applied toward fulfillment of a minor in the social sciences.

1. History 0201, 0202, and 0203
2. History 0516 and 0517
3. Political Science 0101
4. Political Science 0103
5. Political Science 0401 and 0402
6. Social Science 0191 and 0192
7. Science of Society (Monteith) 0131, 0132, 0133, 0231, and 0232

AUDITING COURSES

To audit a course, a student indicates at the time of registration for the course that he does not wish to receive credit. His registration as an auditor is subject to the following regulations:

1. All students must pay the fees established for such registrations, which are the same as for courses elected for credit;
2. A formal, written approval on the face of the program request is required. Such approval is granted by the Dean or his delegated representative;
3. An auditor will not normally be allowed to take quizzes and examinations.

Shifting from credit to audit status is not ordinarily permitted during the quarter. In some cases exceptions may be allowed,

upon recommendation of the instructor and with written approval of the Dean, or Dean's representative.

The Graduate Division does not encourage students to audit graduate courses.

DUAL ELECTIONS

With the Graduate Division — Highly qualified undergraduate students may under special circumstances, take an 0700 or 7000 level course for undergraduate credit only. A written petition initiated by the student's adviser must be approved by the graduate officer of the school or college and by the professor teaching the course. This petition must be accepted by the Office for Graduate Studies before the first meeting of the course.

Under the Senior Rule — A student in his senior year who has a good academic record and who desires to earn a limited number of graduate credits may receive, in his final quarter, a temporary admission for one quarter only to the Graduate Division. For further information, see the Graduate Division Section of this bulletin, page 20.

With the University of Michigan — A student enrolled at either Wayne State University or the University of Michigan may elect a course or courses in the other institution if the course fits his program but is not available in his home institution. The student must have written approval of the department chairman in his major area in his own college and also the approval of the dean of his college prior to doing so. The election must also be approved by the department of the college which offers the course. Students desiring to participate in Wayne State University - University of Michigan dual elections should obtain the necessary forms from the Registrar and pay the appropriate tuition at their home institution.

REPEATING COURSES

If an undergraduate student repeats a course and completes it with a grade of A, B, C, D, or E, the following rules will apply in posting the student's cumulative record:

1. The grade, honor points, and credits for an earlier attempt will be eliminated from the student's honor point average computation.
2. The grade, honor points and credits of only the latest repetition will be included in the student's honor point average computation.
3. The original grade in the course repeated under this rule will be indicated by an R. Thus, the indicator R will appear opposite all attempts in a course except the last.

After a degree has been granted, no grade computed in that degree may be changed.

If a student in post-degree status repeats a course originally taken in post-degree status, then rules 1, 2 and 3 as cited above shall apply. If a post-degree status student repeats a course originally taken under regular undergraduate status, the repetition will in no way modify the earlier attempt.

For information on repetition of courses at the graduate level, see "Honor Point Average," page 17.

School of Business Administration: No course in which a student has received a passing grade or mark may be repeated without the prior written approval of the Director of Student Services of the School of Business Administration.

College of Pharmacy and Allied Health Professions — Faculty of Pharmacy: No course can be repeated without the consent of the Dean or Assistant Dean for Student Services.

College of Pharmacy and Allied Health Professions — Faculty of Allied Health: No course may be repeated without the consent of the adviser(s) delegated for each professional curriculum.

WITHDRAWALS AND CHANGES OF PROGRAM

Withdrawals — Through Friday of the fifth week of eleven-week classes, any student may withdraw from any class by notifying the Registration Office in writing. He may either make out and sign a *Change of Elections* form and leave it in the Registration Office or write a letter specifying the class or classes he wishes to drop. The notice must be received in the Registration Office by the Friday of the fifth week of classes. It is strongly recommended that the student consult with his instructor about his options before dropping a class after the end of the second week of classes.

If a student files a formal withdrawal for a course not later than Friday of the fifth week of classes, that course will not appear on his record. The record of the student who has formally withdrawn from all of his courses by that date will bear the notation "complete withdrawal for the quarter." After Friday of the fifth week of classes, a mark of "W," which will appear on the student's academic record, is assigned for each course from which the student withdraws.

If a student wishes to withdraw from a class after the end of the fifth week and through the third day of the ninth week, he must seek the instructor's written approval. Notice of withdrawal reaching the Registration Office after Friday of the fifth week of classes without the instructor's signature will not be accepted. A student who wishes to withdraw from a course or courses after the third day of the ninth week must obtain the written approval of his instructor and his dean.

In courses other than those meeting eleven weeks, the above rules apply proportionately to the length of the course.

For additional information see Marks, page 17, and the section on "Fees," page 13.

College of Pharmacy and Allied Health Professions — requires that the student consult with his instructor and adviser about his options before dropping a class after the second week of classes.

Changes of program — In order to add a class or to change from one class to another, the student must secure a *Change of Elections* form, have it dated and signed as instructed, and present it at the Registration Office. Such changes involving added courses cannot be accepted in the Registration Office until the first day of classes. Consult the *Schedule of Classes* for procedures to follow in withdrawing from courses.

CREDIT BY SPECIAL EXAMINATION

Upon the recommendation of the department chairman and with the written approval of the appropriate college or school office, a student may earn credit in a course in which he has not been regularly enrolled in this University, but which is offered by a department, by passing a special examination.

Credit by a special examination is restricted as follows:

1. Not more than twenty-four credits may be earned in any one subject.
2. Not more than forty-eight credits may be included in the minimum credits required for graduation.
3. Credit will be recorded with grade to indicate the level of performance in the examination but will not be considered in computing honor point average.
4. Credit will not be considered residence credit.
5. To be eligible to earn credit by examination, a student must have been regularly admitted or have attended with guest status, have enrolled for one quarter, and have completed at least one course.

Students who intend to transfer to other schools are cautioned that credit by examination at one institution is infrequently accepted for transfer credit by another institution.

For Special Examination fee, see page 12.

College of Liberal Arts: Students may satisfy all or part of one or more group requirements by examination subject to the provisions above.

Student Records

UNIVERSITY GRADING SYSTEM

A report of grades and marks is sent to each student after the close of each quarter in which the student has registered.

Final grades are recorded under the following system.

Undergraduate Grades

- A Excellent..... 4 honor points per credit hour
 - B Good..... 3 honor points per credit hour
 - C Fair..... 2 honor points per credit hour
 - D Poor but passing..... 1 honor point per credit hour
 - E Failure or
withdrew failing 0 honor points per credit hour
- P and N indicate Passed or Not Passed. These grades do not affect honor points but courses completed with grade of P may count toward a degree.

S and U indicate Satisfactory and Unsatisfactory performance in non-degree courses and in certain designated courses such as field work, practicums, and internships. S and U grades are not used in the calculation of the honor point average.

Graduate Grades

The graduate grading system is intended to reflect higher standards of critical and creative scholarship than those applied at the undergraduate level. To receive a graduate grade in courses open to both undergraduate and graduate students, the graduate student is expected to do work of superior quality and is required to do any additional work specified by the instructor. Graduate students are required to earn a B (3.0) average to satisfy degree requirements.

Final grades are recorded under the following system.

- A Outstanding..... 4 honor points per credit hour
- B Good..... 3 honor points per credit hour
- C Below graduate
standards..... 2 honor points per credit hour
- D (F) Failure..... 1 honor point per credit hour
- E (F) Failure..... 1 honor point per credit hour

S and U indicate Satisfactory and Unsatisfactory performance in non-degree courses and in certain designated courses such as field work, practicums, and internships. The mark of S is given for all dissertation credits upon final acceptance of the dissertation in partial fulfillment of the requirements for the Ph.D. degree. S and U grades are not used in the calculation of the honor point average.

NOTE: A graduate student who does D or E work in a course will have the mark of F entered on his record. The mark of F, which represents a failing grade at the graduate level, will carry a single honor point for computing the overall grade point average of the student.

In graduate study grades of C, D, and E are definitely unsatisfactory and constitute valid cause for dropping a student from graduate study. To be awarded a graduate degree, the student must have achieved at least a B average. A limited number of C grades, though unsatisfactory, may be applied toward a graduate degree provided they are offset by an equal number of A grades. Students are advised to consult their departments for specific limitations on C grades. Every effort is made to assist the student whose work suffers as a result of conditions beyond his control, or interruption of study for military service.

Law School, School of Medicine: This grading system does not apply to Law School students or students in the four year M.D. program of the School of Medicine.

Marks

- F Failure..... See note above.
- I Incomplete... See below for explanation of this mark.
- Y Deferred.... See below for explanation of this mark.

- W Official Withdrawal... See below for explanation of this mark.
- Z Auditor.... See below for explanation of this mark.
- R Repeated.... See page 15 for explanation of this mark. (this mark applies to undergraduate students only)

The mark of I—Incomplete, is given to either an undergraduate or a graduate student when he or she has not completed all the course work as planned for the quarter and when there is, in the judgment of the instructor a *reasonable* probability that the student can complete the course successfully without *again attending regular class sessions*. The responsibility for completing all course work rests wholly with

the student. The mark of I will be changed to a *grade only* when the student completes the course work as arranged with the instructor or, if the instructor has left the University, with the chairman of the department or other instructional unit.*

The mark of I is inappropriate if, in the instructor's judgment, it will be necessary for the student regularly to attend subsequent sessions of the class. Should regular attendance become necessary, the student must register for the class for the quarter in which attendance is planned. In the event of a second registration for the course, the mark of I for the original election will be changed to W, and the student will be assessed tuition and applicable fees for the second registration.

The mark of I which is not converted to a letter grade within one calendar year from the time it was received will be considered a withdrawal (W), unless, prior to the end of that year, the student requests, and his instructor agrees, to certify in writing to the University Records Office that another calendar year is needed for the removal of the Incomplete.

The mark of Y—Deferred, is given when the student is up-to-date in the work of a course planned to continue beyond the quarter (i.e., essay, thesis, dissertation and certain courses in sequence).

The mark of W—Official Withdrawal, is given when the withdrawal is reported to the Registration Office in writing in accordance with the policy stated on page 15.

The mark of Z—Auditor, is given when the student has registered formally as an auditor. To so register, the student must have the written permission of his dean or the dean's representative.

PASSED - NOT PASSED PROGRAM

The University has approved a program whereby undergraduate students may elect to take courses in which they will be marked as *Passed (P)* or *Not Passed (N)* in place of a letter grade. Except as noted below, the following regulations apply: the student may elect one P-N course per quarter

*The mark of I shall not be changed to an E unless, after receiving the I, the student's subsequent work is of such quality that the overall average for the course is below passing.

with the consent of an adviser, but he may not elect more than six courses in all. After classes have begun, a student may not change from this program to a letter grade election or vice versa. Although any course may be designated for the P-N program, no course taken on this basis may be used to fulfill specific group or major requirements. Credits for a P-N course may be used for graduation but will not count in the honor point average. In the event the student enrolls in more than six P-N courses, those beyond the permissible maximum will be designated on the permanent record as not counting toward graduation.

School of Business Administration: Undergraduate students in the School of Business Administration may *not* take courses offered by the School of Business Administration on a passed-not passed basis.

Monteith College: Tutorials, seminars, and elective courses—but not Monteith basic courses — may be elected as P-N courses. In addition, available courses may be elected from other colleges and schools in Wayne State University for the grade P or N. Note, however, that courses included as part of a Monteith concentration, taken to qualify for admission to a professional school, or taken for teacher certification should not be elected on a P-N basis. Not more than twelve P-N courses may be counted toward graduation requirements.

CHANGES OF GRADE AND MARK

Once recorded in the Office of the Registrar, grades/marks (except Y) will be changed only if an official Change of Grade form, properly completed and signed by the instructor, is submitted to the school or college Grades Coordinator, and is received by the Records Office within four quarters (one calendar year) after the end of the term for which the relevant course was originally graded/marked.

CREDITS

A credit (credit hour) is defined as one class hour requiring a minimum of two hours of preparation per week carried through a quarter. A three hour laboratory period is generally regarded as the equivalent of one class hour.

HONOR POINT AVERAGE

The honor point average is a numerical index of the student's scholastic average. Points are assigned to each letter grade (see University Grading System) for each hour of credit. For example, a grade of A in a class carrying 3 credits would be assigned 12 honor points (3 x 4), and a grade of C in a class carrying 4 credits would be assigned 8 honor points (4 x 2).

The honor point average is obtained by dividing the total number of honor points accumulated by the honor point base which, generally, is equivalent to the total number of credits in course work attempted at Wayne State University. In the example cited the honor point average would be:

$$\frac{20 \text{ (honor points)}}{7 \text{ (credits attempted)}} = 2.85, \text{ nominally a B— average.}$$

The base excludes credit by special examination, transfer credit, basic training credit for veterans, courses dropped with a mark of W and courses in which a grade of S or U, P or N have been received.

At the undergraduate level, courses repeated are computed in the honor point average according to the procedure given on page 15 on "Repeating Courses."

At the graduate level, the base includes all credits in course work taken at Wayne State University which are applicable to the student's degree. It includes credits for courses which are repeated following a mark of F and credits for courses in which a mark of F has been received. Repetition of courses in which a grade of C or better has been received does not affect the honor point average.

Law School: This honor point system does not apply to Law School Students.

RESPONSIBLE ATTENDANCE AND PERFORMANCE

Students must show diligence and are normally expected to complete the courses they elect. Irresponsible attendance is wasteful of both student and University resources. Those students who consistently receive excessive marks of I (Incomplete), and W (Withdrawal) may be refused the privilege of further registration by the dean or the dean's designee of their school or college. Students experiencing attendance difficulties should seek counseling from appropriate college or University offices.

CLASS RANKING

Ranks are determined according to the number of degree credits which the student has satisfactorily completed. The classifications are as follows:

Freshman	0 to 44 credits inclusive
Sophomore	45 to 89 credits inclusive
Junior	90 to 134 credits inclusive
Senior	135 credits or above

School of Business Administration

Freshman	0 to 47 credits inclusive
Sophomore	48 to 95 credits inclusive
Junior	96 to 143 credits inclusive
Senior	144 credits or above

College of Education

Freshman	0 to 45 credits inclusive
Sophomore	46 to 92 credits inclusive
Junior	93 to 139 credits inclusive
Senior	140 credits or above

College of Pharmacy and Allied Health Professions — Faculty of Pharmacy

For purposes of Faculty of Pharmacy ranking, in addition to degree credits earned, consideration is also given to particular professional courses still to be completed.

RELEASE OF STUDENT RECORDS

The University recognizes admissions and academic records of students as being privileged and has a policy designed to ensure that this information is not improperly divulged without the consent of the student. The University is subject to the Federal Privacy Act and has promulgated regulations pursuant thereto. Copies of the regulations and a list of student records maintained by the University are available for inspection in the Office of the Registrar. The University reserves the right to provide anonymous academic information to other schools and colleges when it is to be used for curriculum evaluation purposes.

APPLICATION FOR DEGREE OR CERTIFICATE

Each candidate for a degree or certificate must file an *Application for Degree* in the Records Office, 150 Administrative Services Building, not later than the last day of the registration period for the quarter in which the student expects to complete the requirements for the degree or certificate; consult the academic calendar on page 4 of this bulletin. If an application for a degree was filed for a previous quarter in which the student did not graduate, a new application is necessary.

STUDENT RIGHTS AND RESPONSIBILITIES

Upon the recommendation of the Student-Faculty Council, the University (Faculty) Council, the President-Deans Conference and the President, the Board of Governors in January, 1967, approved a comprehensive statement of Student Rights and Responsibilities for the University. In addition, the Board of Governors adopted Procedures and Guidelines for Implementing Student Rights and Responsibilities. This latter document provides for the establishment of procedures in each of the schools and colleges as well as all University procedures. Copies of these documents are available to students and faculty in the offices of the deans of each college and the Office of the Vice President for Student Affairs.

Law School: The faculty of the Law School has approved a set of academic regulations, copies of which are available to all students enrolled in the Law School.

ACADEMIC APPEALS PROCEDURE

In matters where a School's or College's final decision is based upon the evaluation of a student's academic performance and when review procedures available to him within the School or College have been exhausted, the student may request the Provost to review that decision on the record.

GRADUATE DIVISION

ADMISSION

REGULAR ADMISSION ¹

To qualify for admission an applicant must have the equivalent of a baccalaureate degree from a college or university of recognized standing and adequate preparation with discernible ability to pursue graduate studies in the major field he elects. *These criteria are subject to standards set by the University's individual colleges and schools, which reserve the right to revise or amend their entrance requirements beyond the minimal requirements set by the Graduate Division.*

A completed *Application for Graduate Admission* form, the \$15.00 graduate application fee, and an official transcript from each college or university attended are required before any student can be considered for admission to graduate study. A transcript is considered official if it is sent directly from the institution where the work was completed and bears an official seal. The applicant is also responsible for arranging to take any entrance examinations that may be specified by the Office for Graduate Admissions, the college or school, or the individual department.

Several academic areas of the University require an additional departmental application. Students are advised to contact the department they are applying to and request full particulars on admission procedures.

In most departments (see departmental sections for variants), a regular admission may be authorized upon an adviser's recommendation if the applicant's honor point average is 2.6 (C = 2) or above for the upper division (approximately the last 100 quarter credits) of his undergraduate course work and if he holds a degree from a regionally accredited institution.

Doctoral applicants must present higher entrance qualifications than those required of master's degree applicants. A doctoral applicant is expected to have an undergraduate honor point average of 3.0 (B = 3) or better and must have completed an undergraduate major or have done substantial specialized work in his proposed doctoral major field. Certain departments require the completion of a master's degree with superior scholarship before considering acceptance of a student as a doctoral applicant. Students presenting less than a 3.0 undergraduate honor point average are required to pursue a master's program prior to consideration for admission to a doctoral program.

The individual colleges reserve the right to refuse a non-resident admission if such admission prevents registration of a qualified Michigan resident. This ruling may not be invoked to secure admission to a Michigan resident if his honor point average entitles him to probationary status only.

¹ Wayne State University faculty members holding the rank of Assistant Professor or above may not be admitted to graduate degree programs in the University.

PROBATIONARY ADMISSION

In most departments (see below for variants), probationary admission may be authorized if an applicant's honor point average is between 2.25 and 2.6 or if his degree is from a non-accredited institution, provided the major departmental adviser and the Graduate Officer of the appropriate school or college have reviewed the applicant's academic experience, his extra-scholastic qualifications, his reason for pursuing graduate study, and have recommended *in writing* his admission to the Graduate Division.

Upon recommendation of an adviser and the Graduate Officer of the appropriate college or school, probationary status may be granted to an applicant whose honor point average is below 2.25 if, since the time his baccalaureate degree was conferred, he has shown substantial evidence of extra-scholastic qualifications of such merit as to warrant special consideration.

College of Engineering: Probationary admission may be granted to applicants who do not satisfy the minimum requirements if there is substantial evidence that the applicant can successfully complete a master's program. Students admitted on probation are required to maintain a B average each quarter during which all prerequisite undergraduate courses and the first sixteen credits of graduate course work are taken, before admission to regular status.

Law School: The Law School does not admit students on a probationary basis.

College of Pharmacy and Allied Health Professions—Faculty of Pharmacy: For probationary admission the Faculty of Pharmacy requires the recommendation of the major departmental adviser and the Dean of the College.

Faculty of Allied Health Professions: Students are not admitted on a probationary basis.



DEADLINE DATES

Deadline dates for filing the *Application for Graduate Admission* are published by the Office for Graduate Admissions, 102 Administrative Services Building, Cass and Antoinette Avenues. For international students the application for admission and all supporting transcripts and records must be on file in the Office for Graduate Admissions at least four months before the start of classes for the quarter to which the applicant is applying (fall quarter — classes begin in September; winter quarter — in January; spring quarter — in March; and summer quarter — in June). For United States citizens the following deadline dates apply: fall quarter — August 1; winter quarter — November 15; spring quarter — February 15; and summer quarter — May 15.

Several colleges and departments have earlier deadlines. Students should consult the department or the Office for Graduate Admissions for complete information.

GRADUATE NON-DEGREE ADMISSION*

A student who is entering the Graduate Division with objectives not related to the pursuit of a graduate degree — to earn credits for a *Continuing Teaching Certificate*, or to elect a limited number of courses for personal reasons — may request admission on a non-degree basis. He must file an *Application for Graduate Admission* but is not permitted to record a major. In most instances, a non-degree student may register for any courses for which he has the necessary preparation.

Depending on the applicant's highest previous degree, he may apply for admission to one of the following Graduate Non-Degree Admission classifications:

1. **PRE-MASTER'S.** A student with an acceptable grade point average and an earned bachelor's degree from an accredited institution may apply for this rank. Applicants must submit an *Application for Graduate Admission* and request that official transcripts from all previously attended colleges and schools be forwarded directly to the Office for Graduate Admissions.
2. **POST-MASTER'S.** This rank is reserved for those students who evidence an earned master's degree at the time of application. Students holding Wayne State master's degrees should contact the Graduate Officer of the college they wish to enter. Those with master's degrees from other institutions must submit an *Application for Graduate Admission* and transcripts.
3. **POST-DOCTORAL.** This rank is reserved for those students who evidence an earned doctoral degree at the time of application.

* Applicants are advised that there exists an undergraduate Special Admission classification called "Post-Bachelor." Students wishing graduate credit are cautioned not to enroll "Post-Bachelor" since credits earned while holding that classification do not carry, and may not be converted to, graduate credit.

The applicant for a non-degree graduate classification is cautioned that only one quarter of full-time graduate study, or part-time registrations *not to exceed 16 credit hours*, are normally permitted in any of these classifications. Beyond these limits registration as a non-degree student requires the approval of the Graduate Officer of the student's college. *Not more than 16 credits, subject to the approval of the Graduate Officer, may be applied at a later date toward the residence and credit-hour requirements for either the master's or Ph.D. degree.* For the Ed.D. degree, credit earned beyond the 16 hour limitation will be reviewed by the appropriate Division and the Education Graduate Officer for possible application toward the degree.

No student should select or continue in any of the Graduate Non-Degree Admission classifications if he has any interest in earning a degree. There is no assurance that credits earned while holding a non-degree rank will be acceptable in a degree program, or that prerequisites may not have to be specified if the student later becomes a degree applicant. If the student decides to seek admission to a graduate degree program, he should apply to the College Graduate Officer for a "Change of Status" *before* completing 16 credits.

Graduate Guest Admission — Graduate students from other accredited institutions may be admitted to elect a limited number of credits at Wayne State University. Interested students are directed to contact the Office for Graduate Admissions to obtain a *Graduate Guest Application*, which must be signed by the graduate dean of their home institution before it can be accepted for Graduate Division consideration. A guest admission is valid for only one quarter and must be renewed with each subsequent registration. Admission as a Graduate Guest student does not constitute permission to register as a degree applicant. Transcripts of completed work must be individually requested from the Wayne State University Records Office, room 150, Administrative Services Building, Cass and Antoinette Avenues. Graduate Guest students are required to pay the nonrefundable graduate application fee of \$15.00 EACH TIME THEY APPLY.

Senior Rule Admission — In their last undergraduate quarter, Wayne State students with a 3.0 upper division honor point average have the option of taking a limited number of graduate credits to be used toward a master's degree. Graduate credit is awarded only for those courses taken in excess of baccalaureate degree requirements. Undergraduate and graduate courses combined may not exceed sixteen credits for the final quarter of baccalaureate degree work.

Students who qualify and are recommended by the department will be given a "temporary" admission to the Graduate Division for one quarter. A final transcript showing the bachelor's degree must be submitted to the Office for Graduate Admissions before regular status as a graduate student can be authorized.

As a courtesy, the Graduate Division permits a student admitted to Senior Rule Status to pay undergraduate fees for those graduate courses elected toward his master's degree. Students admitted to this status are advised to elect courses in their Senior Rule quarter that carry both undergraduate and graduate credit. Authorization is made by the individual college or school. Completion of the *Application for Graduate Admission* form is required. Senior Rule Status may be

granted for one quarter only. Students are directed to consult their advisers and the Office for Graduate Admissions. Application deadlines for Senior Rule admission are the same as for regular graduate admission.

College of Pharmacy and Allied Health Professions: Undergraduate Pharmacy students may register for two of the last three quarters of their fifth year (not to exceed eight graduate credits) under Senior Rule Status.

Faculty of Allied Health Professions: Graduate programs in Occupational Therapy and Medical Technology require professional experience for admission. Undergraduates in Allied Health may take advantage of the senior rule upon acceptance into other graduate programs.

Visiting Doctoral Guests — Persons with earned doctorates who are certified as Visiting Doctoral Guests may obtain University library privileges and attend classes upon invitation of the department involved. No official record of attendance is kept on such guests. Permission may be obtained from the Office of the Dean and Associate Provost for Graduate Studies.

INTERNATIONAL STUDENTS

Students from other countries desiring admission to the Graduate Division must contact the Office for Graduate Admissions, 5950 Cass Avenue, for appropriate application materials and deadline dates.

To be considered for graduate admission, applicants must have completed an appropriate university-level program comparable in subject matter and credits to a program for which a bachelor's degree is awarded at Wayne State University.

That a degree in another country may have a similar name to a degree offered in the United States does not mean the two degrees require similar lengths and content of study or that they should be accepted as equivalents. *All graduate applicants must* (1) present an excellent scholastic record; (2) have made financial arrangements which allow for approximately \$6,400 per academic year (three quarters or nine months) for tuition, supplies, and living expenses; (3) have a sufficient proficiency in English as determined by *The Test of English as a Foreign Language (TOEFL)*, to study in classes conducted entirely in the English language.

The Office for Graduate Admissions prefers results from the TOEFL. However, other standard examinations (e.g., the *Michigan Test of English Language Proficiency*) which measure English proficiency may be substituted if conditions prohibit taking the TOEFL.

Any English proficiency test, including TOEFL, must be administered by qualified persons in American Consulates, USIS Offices, universities, or binational centers.

Applicants educated in countries where English is not the native language and who are now permanent residents or United States citizens can be tested by the University's Director of English for Foreign Students if they reside near the Wayne State University campus. Procedures for such testing must be initiated through the Office for Graduate Admissions.

FINANCIAL AID: University sponsored financial assistance for international students is severely limited and unconfirmed awards should not be included in financial projections.

Academic Procedures

Continuance in graduate status is contingent upon the condition that the student is responsible for informing himself of all rules, regulations, and requirements and for complying with all official procedures of the Graduate Division, the individual college or school, and department. The student is responsible for fulfilling all course and degree requirements in proper sequence with satisfactory scholarship. In case of doubt regarding any matter affecting his standing as a graduate student, the student should consult with his adviser. The primary responsibility of keeping himself informed of policy and procedures rests with the student. Regulations contained herein should not be construed as exhaustive.

ADVANCED CREDIT EXAMINATION

A graduate student who wishes to obtain credit toward an advanced degree for knowledge in a field essential to his program of study, acquired by means which preclude formal transfer to Wayne State University, may petition for an advanced credit examination in a course or courses covering the relevant area of study. The petition requesting such advanced credit shall state the basis for the request in terms of the student's competence at the graduate level in the particular academic area. The established examination fee must be paid before the examination is taken. *A minimum grade of B must be earned and all grades will be recorded on the student's transcript. Such grades will not be used in computing the honor point average.* The fulfillment of any requirement through advanced credit examination does not relieve the student of the residence requirement for the advanced degree.

GRADUATE COURSES

Graduate work is classified either as course work, in which students meet as an assembled group, or as research.

Directed Study — Independent study may be authorized provided the area of interest is an integral part of the student's graduate program and is not covered by courses scheduled while he is completing his course requirements. Before a Ph.D. student can register in directed study, he must prepare an outline of the study and obtain the permission of the Office for Graduate Studies. Master's students must obtain the permission of their college Graduate Officer.

College of Engineering: Master's students may earn a maximum of nine credits in Directed Study.

Law School: In addition to the above approvals, graduate students must obtain the permission of the Law School Dean to elect Law School courses or directed studies.

Graduate Students Electing Undergraduate Courses — A graduate student pursuing a teaching certificate and a graduate degree simultaneously should plan a program with both advisers. For information concerning registration for both types of credit, consult the quarterly *Schedule of Classes* which may be obtained at the Registration Office.

SHORT-TERM AND TRAVEL-STUDY COURSES

for Graduate Credit

Short-Term Courses are those created or adapted to meet for a time period of less than one-half an academic quarter — i.e., less than 5½ weeks. Such courses offered for graduate credit will provide for at least eleven contact hours and the requisite proportion of outside preparation for *each* hour of credit. It is assumed that short-term courses will not differ from regular eleven-week courses in terms of objectives, content, contact hours, or academic expectations unless such a difference is reflected by a concomitant proportioning of graduate credits.

Workshop-Institute-Conference Courses (WICs) are those specially formulated experiences which, because of their usually "applied" nature, lend themselves to an exceptionally brief but intensive time span. They differ from short-term courses in their concentration, usually spanning from a single day to two or three weekends. Offered for graduate credit, these courses will provide for a minimum of fifteen contact hours and an appropriate proportion of additional work for *each* hour of credit. Since these experiences vary greatly in their purposes and the degree of participation expected of the student, only those students for whose academic programs they would be directly relevant should enroll in them. Graduate grading will be on an S and U basis only.

Travel-Study Courses are those created or adapted to take special advantage of the opportunity to relate a particular course of study to the cultures, mores, or institutions being studied. Such courses may involve either domestic or foreign travel. All are offered through the College of Lifelong Learning. Graduate credit for travel-study courses will be graded on an S and U basis only.

Graduate students may not register for any course or combination of courses in these categories that permit the accumulation of graduate credits at a rate greater than 1½ credit hours per week. Registrations that exceed this rate will be canceled in advance if discovered and in no case will the excess credit be counted toward the requirements for a Wayne graduate degree.

Graduate students may apply toward a Wayne degree no more than six credits earned in any combination of courses in these categories. This limitation applies to the total of a graduate student's work at Wayne, so that if six credits are applied toward the Master's degree, none may be applied toward a subsequent specialist, second Master's, or doctoral degree.

Credits approved for courses in these categories are the maximum allowable, so that registrations will not be permitted for contingent directed studies or other similar course or research elections.

MAJOR CREDITS

Credits earned in the student's major field are designated as major credits. The dissertation, thesis, the essay, and at least one-half of all other credits, including the final seminar (if required), must be in the major field.

MINOR CREDITS

Credits earned in departments other than the major are classified as minor or cognate credits. Election of minor credit is encouraged to enable the applicant to broaden his program and fulfill his own objectives in graduate study. Minor courses should be related to the major and twelve or more credits elected in any one outside field will constitute a minor.

MAXIMUM CREDIT LOAD

A student with a strong academic record who is devoting full-time to graduate study and who is carrying no outside employment may register in a program *not to exceed sixteen credits per quarter*. The student who is engaged in part-time work should limit his registration in proportion to the amount of his outside work. A student employed full-time will normally not register in excess of eight graduate credits. A student working full-time who desires to carry more than eight credits, must get permission from his Graduate Officer or Dean. Some colleges or schools stipulate other maximum credit requirements, which take precedence over those set by the Graduate Division. *Graduate Assistants are required to register for six to twelve credits each quarter.*

Although the University considers a program of eight credits of graduate course work per quarter to be full-time study, the residence requirement of the Ph.D. program is ten credits per quarter for three consecutive quarters.

TRANSFER OF CREDITS — GRADUATE

In work toward the master's degree, credit beyond the thirty-six credits which must be earned in residence may be transferred from accredited graduate schools, provided such credit is B or better and certified as graduate-level credit on an official transcript.

A student wishing to transfer graduate credit toward the Ph.D. degree must file a petition with the Office for Graduate Studies, approved by his adviser and his Departmental Graduate Committee Chairman, requesting such transfer. The petition must be supported by an official transcript showing a minimum grade of B for the courses to be transferred; B-minus credit is not acceptable for transfer. Transfer credits must be appropriate to the student's degree program and may not be used to reduce the minimum degree requirement of forty-five residence credits (excluding dissertation direction).

Extension Credits earned at other than Michigan institutions cannot be applied toward a graduate degree nor an education specialist certificate.

School of Business Administration: A maximum of eight quarter credits (two courses) may be transferred from other graduate institutions.

College of Engineering: A maximum of nine quarter credits may be transferred toward a Master's Degree from graduate schools of other institutions.

ADDITIONAL ESSAY, THESIS, OR DISSERTATION ELECTIONS AND FEE POLICY

A graduate student who has enrolled for all elections (including essay, thesis, or dissertation) stipulated by his *Plan of Work*, and who has completed all the requirements of these elections except for those associated with either the essay, thesis, or dissertation (whichever is appropriate), will be required to register for one unit (1-4 credits) of essay, thesis, or dissertation direction during each quarter that he uses facilities or receives advisory services until such time as the student:

- a. completes the requirements for the degree;
- b. declares himself no longer a candidate for the degree; or
- c. exceeds the time limit allotted for securing the degree.

For these units the student will pay customary fees and will register as an auditor. No degree credit will be granted for these elections which are beyond the required three credits for an essay, twelve credits for a thesis, or forty-five credits for a dissertation. A mark of Z (Auditor) will be recorded on the student's master record for these additional elections.

College of Nursing: The additional elections and fee policy also applies to field studies and research practicums.

ACADEMIC SCHOLARSHIP

A graduate degree is evidence of scholarly attainment; of ability to achieve academic excellence; of critical and creative ability with capacity to apply and to interpret what has been learned through research, the essay, the thesis, or the dissertation and the several examinations; of ethics in use of the work of others and in interpersonal relationships.

See the section on Graduate Grades (p. 16) for further information.

STUDENT ETHICS

1. The submission of fraudulent academic records for graduate admission or transfer of credit by a student shall be cause for the student's dismissal from the Graduate Division.
2. Academic work submitted by a graduate student for graduate credit is assumed to be of his own creation, and if found not to be, will constitute cause for the student's dismissal from the Graduate Division.

ACADEMIC APPEALS

In matters where the Graduate Division's final decision is based upon the evaluation of a student's academic performance and when review procedures available within the Division have been exhausted, the student may request the Provost to review that decision on the record.

ACADEMIC NEPOTISM

Graduate faculty members are not to place themselves, or allow themselves to be placed, in a situation amounting to "academic nepotism," i.e., teaching or otherwise directing the graduate-credit study or research of a student who is also a close relative. Concomitantly, graduate students are not to take graduate-level courses from close relatives or engage in research for academic credit under the direction of close relatives. All such credit will be disallowed.

Degree Requirements

In addition to the following regulations, requirements may be specified by the individual graduate departments.

MASTER'S DEGREE

The minimum Graduate Division requirement for the master's degree is forty-five credits, at least thirty-six of which must be taken at the University. *In those master's degree programs where the college, school, or department requires more than the Graduate Division minimum, their requirements take precedence.* The Graduate Division recognizes three master's degree plans, though not all plans are offered in each department (for exact information, see listings under individual departments in the appropriate sections of this bulletin):

PLAN A requires a total of forty-five credits, including a total of twelve credits for a thesis.

PLAN B requires a total of forty-five credits, including a minimum of three credits for an essay.

PLAN C requires a total of forty-five credits. The essay or thesis is not required. This plan is authorized only in selected areas. An interested student should consult his adviser.

CANDIDACY

Admission as an applicant does not assure acceptance as a candidate for a degree. Candidacy is a necessary but not sufficient requirement for graduation.

Generally, students enrolled in master's degree programs are expected to file a *Plan of Work* by the time twelve to eighteen graduate credits have been earned. The applicant should petition his adviser to advance his rank to "Candidate." In most departments candidacy must be authorized by the time eighteen graduate credits have been earned or subsequent registration will be denied. In preparing the *Plan*, the student

and adviser should evaluate with care the personal and professional objectives of the student as well as all degree and departmental requirements.

TIME LIMITATION

Students have a six-year time limit to complete all requirements for the master's degree. The six-year period begins with the end of the quarter during which the student has taken work which applies toward meeting the requirements of the degree. The individual college or school reserves the right of revalidation of over-age credits which are between six and ten years old and which represent courses completed at Wayne State University. Such authority rests with the Graduate Officer of the college or school. Students are not permitted to revalidate credits earned at other institutions. In revalidation cases the adviser and the student must set a terminal date for completion of all degree requirements, including such additional requirements as may be prescribed to revalidate the over-age credits. Time extensions beyond these conditions are authorized only for conditions clearly beyond the student's control.

Please see the appropriate sections of this bulletin for specific master's program information.

DOCTOR OF PHILOSOPHY DEGREE

Requirements for the degree of Doctor of Philosophy emphasize an over-all understanding of and high competence in a field of knowledge, familiarity with cognate disciplines, facility in the use of research techniques, and responsibility for the advancement of knowledge. The meeting of the requirements for the doctorate is tested primarily by examinations and the presentation of the dissertation rather than by a summation of courses, grades, and credits.

ADMISSION

A student may be admitted to the status of Ph.D. applicant if he meets all Graduate Division requirements for admission, presents an honor point average of 3.0 (B = 3) and is accepted for study toward the degree by his school or college and major department. In many departments a personal interview with the Chairman of the Department or the Chairman of the Departmental Graduate Committee is considered essential. Students presenting less than a 3.0 undergraduate honor point average are required to complete a master's degree program, or its equivalent, prior to consideration for admission to a Ph.D. program.

PLAN OF WORK

Early in his program the doctoral applicant, with the assistance of his adviser, plans a sequence of studies. This *Plan of Work*, approved by the adviser and the Departmental Graduate Committee Chairman, should be filed with the Office for Graduate Studies before the student has completed sixty graduate credits.

Ph.D. COURSEWORK

To ensure adequate preparation the Graduate Council has adopted minimum coursework requirements for the University's highest degree. Many programs will exceed these statutory minima.

A minimum of 135 graduate credits beyond the baccalaureate degree are required for completion of the Ph.D. program. Normally, a Ph.D. program will consist of:

- (1) thirty credits of coursework in the major;
- (2) forty-five credits of dissertation direction; and
- (3) sixty credits of coursework, pre-dissertation research, and directed study distributed over the major and one or two minors.

The Ph.D. program should provide for effective concentration in a major field with supporting courses in related fields. At least one minor composed of twelve or more credits must be elected outside the major department but in a related field. Courses bearing 0500 and 0600 numbers may be counted toward the "outside" minor requirement. The decision concerning whether the student's *Plan of Work* will include one minor or two is made by the department.

The total Ph.D. program must include forty-five credits, excluding dissertation direction, in courses open only to graduate students (i.e., 0700 level or above).

DISSERTATION REGISTRATION

The dissertation should be given consideration early in the program, but generally a student will not be permitted to register for dissertation direction (0999) credit until he has fulfilled all requirements for advancement to Ph.D. candidacy and submitted an approved dissertation outline.

In some cases, with the approval of his adviser and the Dean and Associate Provost for Graduate Studies, a Ph.D. applicant may be allowed to register for up to (but not more than) fifteen credits of dissertation direction before being admitted to candidacy. The final year may properly center on the requirements of the dissertation.

DISSERTATION OUTLINE

Prior to initiating his research, the Ph.D. student must prepare in quadruplicate the Graduate Divisions *Doctoral Dissertation Outline and Record of Approval* form. This form is approved by the student's dissertation advisory committee and the Chairman of the Departmental Graduate Committee. Following departmental approval, all four copies are forwarded to the Office for Graduate Studies for the Dean's signature and distribution.

PROGRAM EXCEPTIONS

A student who wishes to request an exception to any of the Ph.D. program minimum requirements should file a written,

detailed petition with his adviser. If the adviser approves the petition, he will forward it along with his recommendation to the Chairman of the Departmental Graduate Committee. If approved by the department, the petition will be forwarded to the Dean and Associate Provost for Graduate Studies. All exceptions must ultimately be approved by the Dean and Associate Provost for Graduate Studies.

TIME LIMITATIONS

Students have a seven-year time limit to complete all requirements for the Ph.D. degree. The seven-year period begins with the end of the quarter during which the student was admitted to doctoral study and was taking work toward meeting the requirements for the degree. In the program leading to the doctor's degree up to forty-eight quarter (or thirty-two semester) credits of B or better graduate credit earned prior to the student's admission as a doctoral applicant may be applied toward the degree without regard to lapse of time. Credit earned beyond forty-eight credits may not be over ten years old at the time of admission. Credit earned after acceptance as a Ph.D. applicant may not be over seven years old at the time the degree is conferred, except when, on the recommendation of the adviser, up to fifteen credits previously earned at Wayne State University may be specified for revalidation by examination. In the event that any courses have been previously revalidated in connection with the earning of the master's degree, these shall be counted as a part of the total fifteen. Time extensions beyond these limitations are authorized only for conditions which are clearly beyond the student's control.

CANDIDACY

Effective with registration for the Fall Quarter, 1977, no Ph.D. Applicant will be advanced to the rank of Ph.D. Candidate until he/she submits an approved Plan of Work, successfully completes Qualifying Examinations, and submits and receives the Graduate Dean's approval on the Dissertation Outline.

A student will be allowed to register for a maximum of 15 hours of dissertation credit prior to admission to candidacy. Prior to admission to Ph.D. candidacy, all registration for Doctoral Dissertation Research and Direction (0999, or its equivalent) will require written approval from the Dean and Associate Provost for Graduate Studies. After advancement to Ph.D. candidacy, the Office of the Dean and Associate Provost for Graduate Studies will send the student appropriate authorization forms which will allow the student to register for 0999 credits without the written consent of the Dean and Associate Provost. Such authorization must be retained and presented each time the student registers for 0999 credits.

Before taking the qualifying examination, the student must have filed his *Plan of Work* and passed his foreign language examination if required. The written and oral portions of the qualifying examination will cover the applicant's major and minor areas, and such other related matters as the doctoral examining committee may prescribe.

The oral qualifying examination will be conducted by the doctoral committee within thirty days after the written examination has been passed. If the examining committee does not certify that the applicant has passed in all parts of the written and oral examinations, the committee must make specific recommendations as to admitting the applicant to a second examination and specify any additional work that should be completed prior to such an examination. Certification of "Pass" or "Fail" is made to the Graduate Division after completion of the oral part of the examination. If a second examination is held, it must be scheduled within one calendar year of the date of the first examination. The second examination shall be considered final.

Ph.D. FOREIGN LANGUAGE REQUIREMENT

Effective with the Fall Quarter 1974, the Graduate Council made the Ph.D. Foreign Language Requirement a matter of departmental option. Some Ph.D. granting departments have retained the former language requirement intact, some departments have totally abolished the language requirement, and others have substituted a revised foreign language and/or research skills requirement. Students are advised to contact the department in which they intend to major in order to determine the nature of the Ph.D. foreign language requirement, if any, for that discipline.

Doctoral students should also bear in mind that most departments reserve the right to require demonstrated foreign language proficiency for any Ph.D. student pursuing a research topic which would benefit from the use of foreign language materials, even though other students in the same Ph.D. program are not required to establish foreign language competence.

RESIDENCE

The Ph.D. requirement of one year of residence is normally met by completion of ten graduate credits in each of three successive quarters after admission as a Ph.D. applicant. At least six credits in each of the three quarters must be taken in course work. The remaining four quarter credits may be distributed over dissertation, research or directed study. Graduate assistants and part-time instructors holding no more than one-half time assignments in their major department may meet the residence requirement by carrying *six credits in course work*, exclusive of dissertation, in each of three successive quarters.

In the experimental sciences for which it can be demonstrated that a student's research must be completed on campus, the residence requirement for the Ph.D. degree may be met by the dissertation director's written certification that the student has been in full-time residence for at least three successive quarters and one summer session. In this latter case, a count of course credits is not required for the fulfillment of the residence requirement, but specific dates of residence must be furnished.

In addition, the Ph.D. residence requirements stipulates that the student must elect at least forty-five credits in graduate work exclusive of dissertation direction at the University.

ADVISER AND ADVISORY COMMITTEES

In many departments an adviser is appointed at the time the student is admitted as a degree applicant. The adviser represents the Departmental Graduate Committee Chairman in helping to plan the student's program; in addition he may guide the student's research, sign his quarterly *Program Request*, approve his *Plan of Work*, recommend candidacy, approve his essay or thesis, serve as chairman of his doctoral dissertation committee, certify the fulfillment of degree requirements, and arrange for the qualifying examinations and the dissertation lecture-presentation.

In addition to the Departmental Graduate Committee Chairman, or an adviser appointed to represent him, the Ph.D. student's dissertation research will be guided by a dissertation committee, usually constituted at the time the student is ready to fulfill formal requirements for candidacy and composed of faculty members from whom the student has had or will take course work.

The dissertation committee will consist of a minimum of four members: the dissertation director, two other regular graduate faculty members from the student's major department, and one regular graduate faculty member from a department other than that of the student's major. Ph.D. applicants in the College of Education must have one regular graduate faculty member from another college on their committees. The extra-departmental member of the dissertation committee may serve as the Graduate Examiner for the Candidate's Final Oral Qualifying Examination and his dissertation Public Lecture-Presentation, in which capacity he will file a brief report to the Office for Graduate Studies detailing the conduct of the examinations.

DISSERTATION PUBLIC LECTURE-PRESENTATION

The dissertation will be formally presented in a lecture in which the candidate will state his methodology, research, and the results of his investigation. Conducted by the candidate's committee and chaired by the dissertation director, this final lecture shall be publicized to the entire academic community in advance by the major department. In the discussion following the presentation of a dissertation lecture, other matters which the committee deems relevant may be introduced. Any member of the graduate faculty in regular status may attend, but may participate in the examination only with the approval of the Chairman. A report on this lecture will be submitted to the Graduate Division by the graduate examiner.

GRADUATION

Each candidate for a degree or certificate must file an *Application for Degree* in the Records Office, 150 Administrative Services Building, not later than the last day of the final registration period for the quarter in which he expects to complete the requirements for the degree. Consult the academic calendar on page 4 of this bulletin. If an application for a degree was filed for a previous quarter in which the student did not graduate, a new application is necessary.

COMMENCEMENT

Information concerning commencement announcements, caps and gowns, invitations, tickets, time and place, assembling, and other relevant items will be mailed to the graduates by the Class Board prior to the event. Candidates for advanced degrees are requested and expected to attend the commencement at which the University confers upon them the honor of the degree earned.

INDIVIDUAL INTERDISCIPLINARY Ph.D. PROGRAM

An individual interdisciplinary Ph.D. program may be developed for an exceptionally promising student with the approval of the graduate committees of participating departments and the Dean and Associate Provost for Graduate Studies. Ordinarily, the participating departments will be no more than two, each having jurisdiction over an already approved Ph.D. program; proposals to span more than two departments, or to include a department which does not offer the Ph.D. degree, will require the additional approval of the Graduate Council. The student's field of specialization will be designated by combining existing departmental designations: e.g., chemistry and biology, or physics and mathematics.

While individual interdisciplinary Ph.D. programs shall be governed by the same minimum Graduate Division requirements established for all Ph.D. programs, the student petitioning for such a program must constantly be advised that achieving a satisfactory depth as well as breadth in two fields of specialization may well require a greater extent of time, effort, and expense than does the traditional Ph.D. degree concentrated in a single department.

Additional information and program guidelines are available from the Ph.D. Programs Section, Office for Graduate Studies, 346 Mackenzie Hall.

THESES AND DISSERTATIONS*

The presentation of a thesis or dissertation generally brings to a close the pursuit of either the master's or the doctoral degree. In essence such manuscripts represent a tangible summation of the many hours spent in study and research to acquire a higher education. For this reason such scholarly documents must evidence only the highest standards of research and writing. They must show consistency in punctuation, style, and format.

Advisers have primary responsibility for approval of the thesis, but every member of a doctoral committee must read, approve and sign the dissertation. Such approval includes all academic and professional evaluations and judgments as to originality, adequacy, accuracy, significance, methodology, justification or conclusions, and correctness of style. Approval shall not be recorded until the work and manuscripts are fully verified and accepted.

* Under PLAN B (see page 23) some departments require the completion of an essay prior to the granting of a master's degree. The manuscript must show evidence of scholarly study and writing and be related to the student's major. Candidates are directed to consult their departments as to matters of essay manuscript style.

The thesis and dissertation should be selected and planned with care; either may be of a research, expository, or critical nature. Both must be an original work, in or related to the student's major field of specialization. Work submitted for credit in other courses cannot be used in fulfilling thesis or dissertation requirements. If proper standards of quality, objectivity, originality, and independence are maintained, the candidate may use data that he has derived from his University research. Neither the results of the research nor the publication of findings may be restricted by any non-University agency. The results of the research may be published prior to submission and acceptance of the thesis or dissertation, in which case Graduate Division notification is required.

Format — Candidates submitting manuscripts are instructed to follow closely the Graduate Division and college or school regulations governing the format of the thesis or dissertation. It is official policy that acceptance of a thesis or a dissertation, as well as certification of a candidate for a degree, will not be granted unless a manuscript is technically correct in style and in a form suitable in all respects for publication. The Office for Graduate Studies Ph.D. Programs staff are available to assist advisers and students who have format questions or problems.

Preliminary — A student should not begin work on his manuscript until he has become a Candidate for the degree and submitted a *Thesis or Doctoral Dissertation, Outline and Record of Approval* form. A student may then register for the thesis or dissertation research and direction credits and pay regular fees in the same manner as in all other course work.

Tables — When maps, charts, diagrams or tables have been placed in the body of the manuscript (not in the Appendix), separate lists of tables and figures must be placed in the order indicated after the title page and before the body of the manuscript. Roman numerals are to be used for tables; Arabic numerals for figures and charts.

Abstracts — In addition to the dissertation, each doctoral student must prepare two copies of an abstract, which *must not exceed 600 words*. Certain colleges require abstracts for theses. If in doubt, consult the college Graduate Officer. At the top of the first page of the abstract the following must be recorded:

NAME:	APPROVED BY:
MAJOR:	DATE OF APPROVAL:
DEGREE:	
DATE OF GRADUATION:	
TITLE	
(BODY OF ABSTRACT)	

Include footnote references at the end of the abstract, not at the bottom of each page. The adviser should sign and date both copies of the abstract indicating his approval before delivery of the abstract to the Office for Graduate Studies.

Number of Copies — Each student is required to prepare two copies of the essay, three copies of the thesis (two, if a departmental copy is not requested), and two copies of the dissertation. If the student or his adviser require personal copies, they must be in addition to the above number. Thesis and dissertation copies are to be submitted for binding to the Office for Graduate Studies. Personal copies will not be bound by the Graduate Division. Following binding, one copy is forwarded to the University library and one to the department. *Theses and dissertations are to be submitted in envelopes to the Office for Graduate Studies and must not be punched or placed in binders.*

Reference Materials — Many of the departments, schools and colleges suggest particular reference sources for style, punctuation, footnoting, and pagination. Students are directed to consult individual departments for the recommendation of such reference works.

Students should be certain that typists consult such reference sources in typing the manuscript. *Failure to comply with this requirement may result in additional typing costs for the student.*

Mechanics — The thesis or dissertation must be typewritten. Pica and elite type are acceptable. If mimeograph or other reproduction is used for copies, these copies must be legible, without blurring of letters, diagrams, or charts. The typewritten original should be black and clearly legible, free from erasures, strike-overs, smudges, or smears.

All typing should be double-spaced, except where otherwise indicated, as in footnotes and extended quotations. Margins must be 1½" on the left and 1" on the other sides. Paper in all copies must be of good quality, white, of one kind throughout, of a weight not less than 16 lb. rag bond, and of letter size — 8½" x 11". Onionskin paper, because of its transparency and lack of durability, is not acceptable. Photostatic reproductions, electrostatic copies or photographs may be used provided they are clear and neat in appearance. Glossy reproductions, however, are not acceptable for the dissertation because they do not lend themselves to micro-filming. Fold-out charts may be used. Students who are uncertain as to the acceptability of the duplicating process being considered are invited to consult the Office for Graduate Studies.

The Order of Parts for the thesis or dissertation is as follows:

1. Title Page (*Consult adviser before preparation.*)
2. Acknowledgement, Preface or Foreword
3. Table of Contents
4. List of Tables
5. List of Figures, Maps, Charts, and Diagrams
6. Body, including the introduction and all chapters
7. Appendix, including tables and quotations not in the body
8. Bibliography
9. Autobiographical Statement

Title Page Format

(TITLE OF THESIS OR DISSERTATION)	
by	
(Name of person submitting manuscript)	
(THESIS OR DISSERTATION)	
Submitted to the Office for Graduate Studies, Graduate Division of Wayne State University, Detroit, Michigan in partial fulfillment of the requirements for the degree of	
(FULL DEGREE NAME IN CAPITALS) (Year)	
MAJOR: (KIND OF MAJOR IN CAPITALS)	
APPROVED BY:	
.....	
Adviser	Date

Note — Add area of specialization in parentheses after major where such breakdowns exist. For doctoral dissertations allow one line for each member of the doctoral committee.

Autobiographical Statement — As a last page in each copy of the thesis or dissertation, the student must include a one-page summary of personal information, training, positions held, honors and recognition accorded him, memberships in professional and learned societies, research pursued, and publications.

Binding Charges — Binding arrangements for theses and dissertations are made by the college or school Graduate Officer or the Office for Graduate Studies. A nominal charge is assessed for the official number of copies to be bound. The assessment is paid at the University Cashier's Office. Checks are to be made payable to Wayne State University.

Dissertation Publication Plan — To insure publication, doctoral candidates must, upon assessment by the Office for Graduate Studies, pay the University Cashier a charge of \$33. The University arranges to have the dissertation microfilmed. Filing a *Microfilm Agreement Form* is required. A positive copy of the microfilm will be placed in the University Library and the abstract will be published in *Dissertation Abstracts*. Deviations from this procedure require the approval of the Office for Graduate Studies.

Dissertation Copyrighting Charge — Copyright service provided by University Microfilms, Inc. is available upon request. The candidate, upon assessment by the Office for Graduate Studies, pays the University Cashier the amount necessary to cover the cost of copyrighting.

Typing Services — The University Information Center (telephone 577-3611) maintains a roster of typists and typing services. Upon request of a student, the name or names of typists residing in his area will be provided. The roster is open to any typist or secretarial service submitting a name.

The University does not investigate these names as to competence and reliability nor does it follow up to determine whether the names listed are still offering their services. *The Graduate Division has at no time given permission to any secretarial agency or typist to use its name as a "seal of approval."* When selecting an agency or a typist, it is best to do so on the recommendation of a friend, an adviser, or a member of the faculty. *It is the student's responsibility to make certain that the typist selected follows an approved manual of style.*

Graduate Financial Aid

The following is a description of major sources of financial support for graduate students. Interested students are invited to contact the Office for Graduate Studies for further information.

University Graduate Fellowship — This program has been established to support doctoral students judged to be exceptionally qualified by the University Graduate Fellowship Selection Committee. The applicant may be either entering a doctoral program or already engaged in a course of graduate study leading to the doctorate.

The applicant should be an outstanding student with clearly defined objectives relevant to his area of specialization. The basic stipend for each fellow will be \$3,000 per academic year plus full tuition. An additional allowance for dependent children is provided. Application forms are available from the Office for Graduate Studies and must be returned by March 1. Applications must include verbal and quantitative scores on the Graduate Record Examination. Awards are contingent upon official acceptance for doctoral study and full-time enrollment.

Graduate-Professional Scholarships — Each year the University awards a number of tuition scholarships for students in graduate or professional degree programs. Application forms are available from the Office for Graduate Studies and are returnable by April 1. Students in the Law School and the School of Medicine are advised to consult their schools concerning different deadline dates and procedures. Awards are contingent upon acceptance for graduate study and full-time enrollment.

National Direct Student Loan Program — The University is a participant in the Student Loan Program authorized by the National Defense Education Act of 1958. Inquiries concerning this program should be addressed to the Office of Student Financial Aids, room 222, Administrative Services Building, Cass and Antoinette Avenues.

Gerontology Awards — The Wayne State University Institute of Gerontology offers graduate traineeships plus tuition for study in a number of disciplines related to the field of aging.

Interested students should contact the Institute of Gerontology, 5229 Cass Avenue.

Urban Studies Awards — Wayne State University's Center for Urban Studies offers fellowships for graduate students in any academic discipline related to urban affairs. Interested students should contact the Center for Urban Studies, 5229 Cass Avenue.

Departmental Awards — Assistantships, associateships, fellowships, and scholarships are available in many graduate departments. Information concerning these may be obtained by writing directly to the Chairman of the department in which the student desires to major.

Student Loans — Loans, usually not exceeding graduate fees, are available to students who have satisfactorily completed a full quarter at Wayne State University. These loans are customarily repaid before the beginning of the succeeding term, although longer terms are sometimes arranged for advanced students. Interested students should apply to the Office of Student Financial Aids, room 222, Administrative Services Building, Cass and Antoinette Avenues.

Date of Acceptance of Appointments — Wayne State University subscribes to the following statement, adopted by most of the graduate schools of North America: *In every case in which a graduate assistantship, associateship, or fellowship for the next academic year is offered to an actual or prospective student, the student, if he indicates his acceptance before April 15th, will have complete freedom through April 15th to submit in writing a resignation of his appointment in order to accept another graduate appointment. However, an acceptance given or left in force after April 15th commits him not to accept another appointment without first obtaining formal release for that purpose.*

Graduate Programs

Wayne State University offers graduate programs leading to the master's (M), Education Specialist Certificate (S), and the doctorate (D) in the following majors. Prospective students are advised to consult the department closest to their interests for information concerning further specialization.

School of Business Administration

<i>major</i>	<i>degree</i>
Business Administration	M

concentrations

Business Economics	Management
Finance	Managerial Accounting
Financial Accounting	Marketing
Industrial Relations/Personnel	Operations Management

College of Education

<i>major</i>	<i>degree</i>
Art Education	M
Curriculum Development	D
Educational Leadership	M
Educational Administration and Supervision	S, D
Educational Psychology	M, D
Educational Sociology	M, S, D
Elementary Education	M, S
Elementary Education Curriculum and Instruction	S
Elementary Reading	M
Evaluation and Research	M, D
General Administration and Supervision	S, D
General Secondary Education	S
Guidance and Counseling	M, S, D
Health Education	M
Higher Education	D
History and Philosophy of Education	M, D
Instructional Technology	M, S, D
Library Science	M
Physical Education	M
Pre-School and Parent Education	M
Reading	S
Recreation and Park Services	M
School and Community Psychology	M, S
Secondary Administration and Supervision	S, D
Secondary School	
English Education	M, S
Foreign Language	M
Mathematics Education	M, S
Reading	M
Science Education	M, S
Social Studies Education	M, S
Special Education	M, S, D
Teacher Education	D
Vocational and Applied Arts Education	
Business Education	M
Distributive Education	M
Family Life Education	M
Industrial Education	M
Vocational and Applied Arts Education	M, S, D
Vocational Rehabilitation	M, S

College of Engineering

<i>major</i>	<i>degree</i>
Chemical Engineering	M, D
Civil Engineering	M, D
Electrical and Computer Engineering	M, D
Mechanical Engineering	M, D
Industrial Engineering and Operations Research	M, D
Metallurgical Engineering	M, D

Law School

<i>major</i>	<i>degree</i>
Corporation and Financial Law	M
Labor Law	M
Medical Jurisprudence (students with M.D.s only)	M
Taxation	M

College of Liberal Arts

<i>major</i>	<i>degree</i>
Anthropology	M, D
Art	M
Art History	M
Biology	M, D
Chemistry	M, D
Classics	M
Comparative Literature	M
Criminal Justice	M
East European Studies	M
Economics	M, D
English	M, D
Family and Consumer Resources	M
French	M, D
Geography	M
Geology	M
German	M, D
History	M, D
Italian	M
Latin	M
Linguistics	M
Mathematics	M, D
Applied Mathematics	M
Computer Science	M
Mathematical Statistics	M
Modern Languages	D
Music	M
Near Eastern Languages	M
Philosophy	M, D
Physics	M, D
Political Science	M, D
Psychology	M, D
Public Administration	M
Russian	M
Sociology	M, D
Spanish	M, D
Speech Communication and Theatre	M, D
Urban Planning	M

School of Medicine

<i>major</i>	<i>degree</i>
Anatomy	M, D*
Audiology	M, D†
Biochemistry	M, D*
Microbiology	M, D*
Occupational and Environmental Health	M
Pathology	M
Pharmacology	M, D*
Physiology	M, D*
Psychiatry	M
Radiology	M

College of Nursing

<i>major</i>	<i>degree</i>
Primary Care Nursing — Adult	M
Advanced Medical Surgical Nursing	M
Adult Psychiatric — Mental Health Nursing	M
Child and Adolescent Psychiatric — Mental Health Nursing	M

Community Health Nursing	M
Nursing Care of Children and Adolescents	M
Advanced Maternity Nursing	M
Nursing	D

College of Pharmacy and Allied Health Professions

<i>major</i>	<i>degree</i>
Faculty of Pharmacy	
Hospital Pharmacy	M
Pharmaceutical Chemistry	M, D
Pharmaceutics	M, Pharm. D, D
Pharmaceutical Administration	M, D
Pharmacognosy	M, D
Pharmacology	M, D

Faculty of Allied Health Professions

Medical Technology	M
Occupational Therapy	M

School of Social Work

Methods of Social Work Practice taught with the following foci:

	<i>degree</i>
Case Work	M
Community Work	M
Group Work	M
Social Work Practice	M

University Centers and Institutes

CENTER FOR BLACK STUDIES

586 Student Center Building

The Center for Black Studies, the recipient of much University and community support since its inception in 1972, is an educational, instructional and research facility available to all the people of the Detroit community. Because of its dynamic and ever-changing character, the Center has conformed to no one ideological position; rather it has sustained the capacity to embrace and utilize a variety of perspectives.

The Center has recently extended its design into the development of meaningful teaching strategies, creative curriculum development, and viable research programs. Assuming the position of an educational catalyst, the Center intends to play a dramatic role in the growth and development of black

† Awarded through the Department of Speech Communication and Theatre, College of Liberal Arts.

* Combined M.D.-Ph.D. program available in this major.

people both here in America and abroad. As one means of attaining these goals the Center currently offers an academically substantive and politically relevant co-major curriculum. Complete information concerning this program as well as black studies course offerings may be found on page 271 of this bulletin.

CENTER FOR THE STUDY OF COGNITIVE PROCESSES

758 Mackenzie Hall

This Center brings together faculty members from psychology, linguistics, education, and other fields to promote interdisciplinary research in cognitive processes. Recent projects have dealt with concept formation, language development, and related topics.

COMPUTING AND DATA PROCESSING CENTER

The University operates one of the largest computer centers in the metropolitan area. This modern facility is dedicated to the service of all university students, faculty, and staff. The center currently has an IBM 360 model 67 with two processors and two million bytes of memory and several auxiliary data storage devices attached. The operating system used supports both time-sharing terminals as well as batch job submissions.

The Wayne State Computing Center is part of the MERIT Computer Network which joins to Wayne State the computing facilities of the University of Michigan (full duplex IBM-360/67) and that of Michigan State University (CDC-6500).

RESEARCH INSTITUTE FOR ENGINEERING SCIENCES

220 Engineering Building

The Research Institute is established to promote multidisciplinary research in areas of science and engineering, and is staffed by faculty from several departments of the College of Engineering and of the natural sciences. Adjunct faculty from other universities and from industrial and governmental research laboratories are also involved in several research programs.

Research areas which are under current study include non-equilibrium chemistry associated with molecular laser operation, upper atmospheric chemistry, energy conversion and quench chemistry, the microscopic description of strongly perturbed fluids, the fundamental interactions between molecular systems, excited state combustion chemistry, laser stimulated chemical reactions, nuclear initiated chemical conversions, ion-beam analysis of thin films, holographic fatigue studies and mathematical techniques involved in optimization of multivariable problems.

A broad range of laboratory facilities including several molecular beam machines, a discharge flow reactor, molecular laser systems, a Van de Graff accelerator (in the Physics Department), and equipment for fatigue studies are available for the experimental research programs. These laboratories use state of the art electronic and vacuum technologies as well as numerical data processing capabilities. They are oper-

ated by members and research associates of the Institute and by graduate students.

INSTITUTE OF GERONTOLOGY

205 Library Court

The Institute of Gerontology was established by the Michigan State Legislature in 1965 as a joint institute between Wayne State University and the University of Michigan. The Institute's program consists of three major functions: education, research, and service.

Education — The Institute offers a Specialist Certificate in Aging at the graduate level. The Certificate is obtained concurrently with a graduate degree, or it may be obtained independently by those students who already have obtained a Master's or a doctoral degree. Requirements for the Certificate include completion of a required course sequence in gerontology, attendance at the Institute-sponsored gerontology colloquia series, and a supervised internship. Each year, some thirty undergraduate and graduate gerontology course offerings are available on the Wayne campus in various academic areas, including sociology, psychology, social work, nursing, political science, economics, biology, physiology, speech, communication and theatre, family and consumer resources, and recreation.

Research — The Institute encourages and supports research activities of faculty and students in cooperating academic units on the campus. Gerontological research projects at Wayne have involved such subjects as social policy and aging, biological and physiological aging, psychological processes and aging, service needs of the aged, housing policy and the aged, and service delivery and the aged.

Service — The service program of the Institute is designed to meet certain needs not provided for by other agencies. Institute staff serves in an advisory or consultative capacity to local, state, and national agencies and organizations concerned with aging and the aged. The Institute also compiles, publishes, and distributes *Information on Aging*, a periodic newsletter containing information on events related to the aged such as new and proposed legislation, public programs, and community services.

Gerontology Learning Resources Center — The Institute's Learning Resources Center is an active, research-oriented library offering comprehensive reference service in all areas of gerontology. The multidisciplinary collection includes materials on relevant subjects such as biology, social welfare, health, social security, economics, political science, psychology, law, sociology, housing, transportation, employment and education. To support the needs of faculty, researchers, community and students, the Center maintains a growing collection of monographs, periodicals, government documents, audio-visual materials and newsletters. In addition, the Center maintains extensive vertical files of reprints and unpublished papers, pamphlets, bibliographies, and newspaper clippings. The main collection is housed in open stacks; the reading room accommodates thirty users. Services available to users include circulation of materials, location assistance, photocopying, information and reference, and library guid-

ance and instruction; these services are provided by a professional librarian.

CENTER FOR HEALTH RESEARCH

315 Cohn Building

The Center for Health Research provides supportive services to the College of Nursing to conduct scientific investigations of health care problems of specific interest to nurses and health care providers in general. Examples of areas currently being studied are family planning, psychological stresses resulting from illness, methodological issues in care evaluation, retention of nurses in career roles, decision-making processes used by practitioners, needs of parents of children with spina bifida, and hospital acquired infections. Students in the College of Nursing graduate programs have the opportunity to become involved in the ongoing research.

INSTITUTE OF LABOR AND INDUSTRIAL RELATIONS

5475 Woodward Avenue

The Institute's main components are the Management Center and the Labor Studies Center. Each of these components offers courses and other training programs to companies and individuals seeking to acquire work-related expertise. The Institute is cosponsored by Wayne State University and the University of Michigan.

CENTER FOR TEACHING ABOUT PEACE AND WAR

5229 Cass Avenue

The Center for Teaching About Peace and War was established in 1966 at Wayne State University to encourage the study and teaching of peace and war and domestic and international conflict and conflict resolution, and to acquaint the community with current thinking on new approaches to these momentous issues. The Center sponsors workshops, conferences, public affairs forums, and conducts curriculum research dealing with peace education. Programs are developed under the leadership of an interdisciplinary executive committee.

Detroit Council for World Affairs—In 1973 the Detroit Council for World Affairs, 5229 Cass Avenue, was reactivated. The Council is the community arm of the Center and provides programs for adults to stimulate thinking about the world in which we live and to acquaint them with alternative solutions to world problems.

CENTER FOR URBAN STUDIES

5229 Cass Avenue

The Center conducts a variety of educational, public service, and research programs. Fundamental to these programs is an active engagement in the life of the city and multi-disciplinary approaches to urban problems. Students play a significant role in the Center's activities as Urban Fellows or Interns, and as Graduate Assistants.

32 *General Information*

GRADUATE DIRECTORY

Wayne State University
Detroit, Michigan 48202
Area Code 313

Graduate Admission

Office for Graduate Admissions
102 Administrative Services Building
Telephone: 577-3596

Catalog Requests

University Information Center
161 Administrative Services Building
Telephone: 577-3611

Fellowships and Scholarships

Assistant Dean for Graduate Studies
364 Mackenzie Hall
Telephone: 577-2170

International Student Advising

International Student Services and Activities
470 Mackenzie Hall
Telephone: 577-3422

Loans

Office of Scholarships and Financial Aids
222 Administrative Services Building
Telephone: 577-3378

Student Employment

Placement Services
214 Administrative Services Building
Telephone: 577-3390

Graduate Assistantships

Write the chairman of the department in which you intend to major.

UNIVERSITY STUDENT SERVICES

OFFICES OF THE VICE PRESIDENT FOR STUDENT AFFAIRS

1056 Mackenzie Hall; 577-1992

Dorothy L. Frackelton, M.Ed., Vice President for Student Affairs

Among the major duties of the Office of the Vice President for Student Affairs are communication of student attitudes and activities to the faculty, administration and general public; interpretation of University objectives and policies to students; assistance to students in developing their potential through effective use of the University's resources; and contribution to the creation of a campus which goes beyond traditional classroom environment in encouraging intellectual stimulation.

Moreover, this office oversees student personnel services, student organizations and activities, special student programs, health services and the Women's Center. It is the responsibility of the office to communicate with the President and his staff and to cooperate in the work of their division; to participate in development of the University with regard to its program and staff needs; to help students develop a sense of their individual responsibilities; to assist in the definition of student rights and responsibilities; to maintain communication between students and all other groups within the University; and to assure that student viewpoints are represented, heard and understood in all policy-setting deliberations of the University.

DIVISION OF STUDENT PERSONNEL — CENTRAL OFFICES

652 Student Center; 577-3350

John Bates, M.A., Director of Student Personnel Activities

1052 Mackenzie Hall; 577-3353

Harold Cruger, M.Ed., Director of Student Personnel Services

The Divisional Office coordinates a variety of student personnel services and student activity support services, designed to meet student needs, available to students through the various departments of the Division of Student Personnel. In addition, the Office is administratively responsible for the Division.

Programs of the Division provide opportunities for students, individually or in groups, to voice their questions and concerns and to receive assistance in defining problems and working toward effective solutions. Furthermore, it seeks to minimize student frustrations so that the student may gain confidence in his/her ability to accomplish goals through established channels.

EDUCATIONAL REHABILITATION SERVICES

450 Mackenzie Hall; 577-3362

Elizabeth Schrauder, M.A., Director; James Facen, M.Ed.

Educational Rehabilitation Services provides numerous resources and facilities for disabled students. The entire campus has been provided with ramps and other facilities so that students in wheelchairs may have maximum independence and complete accessibility to classrooms and to other areas. Fully-equipped study rooms and volunteer recording and reading services are available to blind students. Other services include orientation programs, personal counseling, career counseling, adaptive equipment and wheelchair repair, registration, reserved parking, and individual administration of class examinations, and a transportation system.

INTERNATIONAL STUDENT SERVICES AND ACTIVITIES OFFICE

470 Mackenzie Hall; 577-3422

Hazel Boltwood, B.A., Sheldon Gary, M.P.I.A.

The University has one of the largest and most diversified international constituencies in the United States. The International Student Services and Activities Office provides individual counseling, campus and community programming, and special services meeting the needs of the foreign students, scholars, and university personnel.

Immigration regulations require that all foreign students, scholars, and personnel maintain legal status within the requirements of the United States Department of Justice. University departments intending to hire foreign scholars or other personnel should contact this office. The foreign student advisers will be able to assist the department and the potential employee with the immigration procedures involved.

American students and faculty can obtain information on study and travel abroad in this office. Eligible students can obtain the International Student Identity Card. Hosting and program arrangements for short-term international visitors on campus are also the responsibility of this office.

MILITARY AND VETERANS AFFAIRS

5743 Woodward; 577-3374

Harold Donaldson, M.A., Director; Pellam Love, M.A., Michael Piotrasch, B.A.

Veterans have an excellent resource in the Office of Military and Veterans Affairs. Knowledgeable counselors will be glad to discuss individual educational problems and goals. All veterans must visit this office — or the Military and Veterans Affairs desk at registration time — in order to be certified for their educational benefits. An active Vet's Club is located at 148 Mackenzie Hall; 577-3449. A Veteran's Workshop located at 467 W. Hancock (telephone: 577-7340) is de-

signed to provide tutorial assistance and counseling services as well as reading, study and communication skill development.

OFFICE OF STUDENT ACTIVITIES COUNSELING

351 Student Center; 577-3444

Deborah Stanifer Smith, M.Ed., Director; Constance Cabbil, M.A., J. Ricky Earnest, M.A., Patricia Herold Murphy, M.Ed., Stanley Putnam, B.A., Joseph A. Zrimec, Jr., M.A.

Integral in the Student Activities program is the concept that the development of the total person is enhanced by his or her participation in co-curricular activities. Through the development of leadership skills, group interaction skills, and techniques of organization, individuals are able to gain further benefits from their college experience. Through the counseling and advisory activities of the counseling staff, students are able to become more self-reliant and to develop their potential in later life.

Through this office, students may obtain information about any of the 180 currently recognized campus organizations. Predominantly student-initiated, student-centered and student-directed, these organizations conduct numerous programs and activities which cover a wide range of purposes. The organizations include professional and academic organizations; musical, dramatic, and speech organizations; political and social action groups; religious and ethnic groups. The office is responsible for a University-wide orientation program which is held year round and provides information, service and educational workshops and seminars to the new and continuing student.

UNIVERSITY COUNSELING SERVICES

334 Mackenzie Hall; 577-3398

John Hechlik, Ph.D., Director

University counseling services function in the following three broad areas of service:

Testing and Evaluation

343 Mackenzie Hall; 577-3400

This area offers students the opportunity to take various achievement, aptitude and personality tests to aid them, as well as university units, in formulating goals and plans and in making decisions. As needs arise and as time and resources permit, research studies are concluded.

Testing is provided for entrance examinations, freshman tests, qualifying examination for course selection and tests required by professional associations and graduate schools.

Services to faculty and academic personnel include preparation of class reports based on Scholastic Aptitude Test or qualifying examination data, consultation regarding test programs commercially available, consultation on construction of course examinations, scoring of departmental examinations, and student course evaluations.

34 *General Information*

Counseling and Psychological Service

334 Mackenzie Hall; 577-3398

Wayne Chubb, Ph.D., Marisa Keeney, Ph.D., Robert King, M.A., Herbert Whitehouse, M.Ed.

This area offers student assistance in areas of career or educational problems and personal or relationship problems.

Counseling provides help to students in setting and realizing meaningful educational and career goals, resolving motivational conflicts, and establishing a clearer identity of themselves and their relationship to the world around them. Any facet of experience which relates to personal growth may be explored with the counselor or staff psychologists. Confidential interviews, group programs, psychological testing, and occupational information are available.

Referral by faculty or academic personnel is appropriate for students who express lack of meaningfulness of their educational program, indecision as to goals, motivational difficulties, problems in social relationships, or ineffective personal functioning.

Reading and Study Skills

467 W. Hancock; 577-3368

Patricia Remington, M.A.

This area offers student help in clearly defining realistic educational goals and developing learning process skills necessary to achieve them. Students are provided assistance in improving reading comprehension and speed, vocabulary expansion, study habits, note taking methods, examination taking skills as well as behaviors which relate to success in their academic program.

Service is provided through credit free courses, individualized counseling and laboratory experiences, or through programs coordinated with academic departments or special programs. Referral by faculty is appropriate whenever a student's academic performance suggests the need for help in any of these areas.

UNIVERSITY PLACEMENT SERVICES

1st Floor, Mackenzie Hall; 577-3390

John Crusoe, M.B.A., Director; Kenneth Hillstrom, M.A., Eugene Johns, M.B.A., Annette O'Neill, B.A., Joyce Wong, M.A., Karen Iverson, M.Ed., Maria Menezes, M.Ed., Lee Lewis, M.Ed.

Placement counselors help students and alumni with career and educational goals. The services include helping students find part-time jobs with the University and off campus, or, for students who must earn all their college expenses, full-time work. The Cooperative Education Program provides students with comprehensive professional preparation in Engineering, Business Administration and certain departments of the College of Liberal Arts.

Besides helping students earn enough money to stay in college, placement helps them, and alumni, find full-time employment after graduation. Alumni holding graduate degrees may establish credential files. Placement Services is not an employment agency; it helps the individual find his own meaningful work. To heighten the probability of a match between applicant and employer, it hosts recruiters during the fall and winter quarters; in addition, some employers ask Placement Services to find them full-time employees, and another 2,000 Michigan employers seek applicants for part-time jobs. Placement counselors will help students find jobs, or they will work with the student to develop his or her long-range career goals.

Faculty members who have jobs for which students or alumni might apply are urged to communicate with this office for assistance in locating employees.

STUDENT CENTER BUILDING

112 Student Center; 577-3482

Kenneth Moon, M.A., Director; Theodore Watkins (Building Coordinator)

The Student Center Building contains the University Reservations Office, dining, lounge, study and meeting rooms, and recreational facilities. In addition, the Student Activities Counseling Office, Offices of the Student-Faculty Council, as well as student organizational offices are located in the facility.

SPECIAL STUDENT SERVICE PROGRAMS

370 Mackenzie Hall; 577-1934

Charles Gordon, M.Ed., Director; Philip Berns, M.A., Claretta Evans, M.A., Jason Gamlin, B.S., William Moon, M.A., James Moore, M.Ed., Paul Rease, B.A.

The primary function of this department is to create, establish, and coordinate various programs within the University which focus on the needs of economically- or educationally-disadvantaged students; and to combine the expertise of the faculty, the student body, and the community in order to afford these students a realistic chance to pursue a higher education.

Project 350 is a major example of these programs. Its objectives are basically to provide educational opportunities for students who have the intellectual potential for university training but who normally would not consider undertaking a college level program; to provide for all students an opportunity for the vital cultural and social experiences which result from persons of different cultures living, working, and learning together; and to develop and disseminate to other institutions and agencies information which will increase society's ability to resolve successfully the educational and sociological problems which can affect students. It is the broad objective of this department to open doors to all students, but especially to young Michigan men and women who

come from families and schools which offer them only limited preparation for higher education.

HEALTH SERVICE

5th Floor, Mackenzie Hall; 577-2000

Andrew Smith, M.D., Director; Robert Alderman, M.D., H. Paul Runnels, M.D., Henry Tazzioli, M.D., Halyna Wowk, M.D., Dorothy Ace, R.T., Gladys Ferguson, M.T., Grace Moy, R.N., Theresa Rohs, R.N., Melanie Smith, R.N., Virginia Wood, M.T., Bette Wysocki, R.N., Lois Zapf, R.N.

All students are encouraged to use the facilities of the Health Service at any time. Chest X-rays and other laboratory services are always available. Consultations in eye problems and skin diseases are available on an appointment basis.

The University requires all students to have on file at the Health Service a completed physical examination form. The Health Service will give the X-ray and required laboratory tests any time after registration at no cost to the student.

A student hospitalization insurance program is offered at a modest fee for full twelve month coverage to students who elect six credits or more. The policy provides stipulated amounts for hospital, surgical, consultant, and incidental fees in the event of injury or accident requiring medical care beyond the facilities of the Health Service. It supplements regular Health Service care in providing for the occasional catastrophic expenses which arise as a result of serious accident or illness.

MENTAL HEALTH CLINIC

5th Floor, Mackenzie Hall; 577-2006

Lyle Ward, M.S.W., Director; Melvin Bornstein, M.D., George Hunter, M.S.W., Kathleen Keegan, M.S.W., Channing Lipson, M.D., Sophie Rosengard, M.S.W., Carter Schumacher, M.S.W., Mayer Subrin, M.D., Barbara Tilley, M.S.W.

Mental Health Clinic Services are free to students who are troubled by emotional conflicts or anxieties relating to study, social, or family difficulties. Consultation and treatment are available by a qualified professional staff.

THE WOMEN'S CENTER

167 Mackenzie Hall; 577-2332

Kay Hartley, M.A., Director

The Women's Center opened on July 1, 1976. The Center has a lounge for talking, reading or resting, a small conference room and offices for the secretary and director.

The Women's Center provides resource information and referral services, both on and off campus, for questions relating to legal rights, education, health care, credit, divorce, rape, abortion and other concerns.

Resource information is also available on a variety of areas of interest to women, such as bibliographies of books and publications, community groups and the like.

Activities presently being discussed include: showing and discussing of films of interest to women, establishing a variety of support groups for women, and offering seminars on topics of special interest to women.

OTHER UNIVERSITY SERVICES

UNIVERSITY LIBRARIES

The University Libraries are housed in five separate units, four of which are free-standing buildings. As of June, 1976 the Library system had close to 1,750,000 books and bound journals and subscribed to some 10,000 current journals. The collections also include some three-quarters of a million pieces: pamphlets, government documents, maps, microprint, microfilms, microfiche, film strips, sound recordings.

The library system comprises the G. Flint Purdy Library, the Kresge Library, the Arthur Neef Law Library, the Science Library, and the Vera Parshall Shiffman Medical Library. Except for items forming special collections and those items in the storage library, the University collections are in an open stack arrangement. It should be noted that there is also a working collection maintained at the Southfield Extension classrooms.

These collections are supplemented by the resources of two other major libraries, the Detroit Public Library and the Center for Research Libraries. A longstanding joint acquisitions program with the former institution has operated to avoid duplication in collections. Access to the Detroit Public Library is available to all Wayne students and faculty. The Center for Research Libraries is a non-profit organization operated and maintained by its member institutions for the purpose of increasing access to library materials for research purposes. It collects government documents, newspapers and other statistical materials from many areas of the world.

The remainder of its collections might be characterized as "little-used," that is, journals which are of scholarly value but are deemed not to be in sufficient demand to be purchased by a member library, and older material that has been given to CRL by its members for storage to make them commonly accessible. Wayne State University has been a member of the Center for Research Libraries almost from its beginning in 1949.

G. Flint Purdy Library

The G. Flint Purdy Library was Wayne State University's first free-standing library building and was completed in 1953. It was then called the General Library and contained all the collections of the University except those of the Medical Library. In 1973 the library was re-named after G. Flint Purdy, the individual who was the intellectual force in building the University's collections and library structures and the University's Librarian from 1936 thru 1969.

At present the Purdy Library contains the collections for the humanities and social science departments of the College of Liberal Arts, the School of Business Administration, and the School of Social Work. The collections now number over 1,000,000 items. The library also houses the University's largest microfilm collection and the larger of its two government document depository collections.

Kresge Library

The Kresge Library, a free-standing building, connected to the G. Flint Purdy Library, houses the University's Education Library and the collections of the Department of Library Science. The Education Library contains not only the scholarly records of education, but also supportive collections of textbooks, children's literature, curriculum guides, etc., which serve as a laboratory for the College of Education.

Science Library

The core of this library's collection is the Hooker Scientific Library which was purchased in 1944 with a grant from the Kresge Foundation. The Science Library contains the collections for the science disciplines of the College of Liberal Arts as well as serving as the primary library for the College of Engineering and the College of Nursing. The Library now contains over 275,000 volumes and is currently receiving over 2200 journals.

The Vera Parshall Shiffman Medical Library

This library building, serving both the School of Medicine and the College of Pharmacy and Allied Health Professions, is located in the Detroit Medical Center. Its collections include over 125,000 volumes and it receives some 2900 journals covering the intellectual content of the world's medical scholarship. The collections of the Medical Library had their beginning with a physician's association which organized a library in the late nineteenth century. This collection was then given to the Detroit Public Library to operate for the medical community of Detroit and was housed in the Medical School beginning in 1923, thus serving two purposes, as the School's library, and as a specialized community library for health professionals. In 1948 the Detroit Public Library leased the Medical Library collection to the University with the understanding that the University would continue to operate the newly-formed medical library as a community facility. The Shiffman Library serves as a medical resource library for the Detroit Metropolitan area as well as the headquarters office for the Kentucky-Ohio-Michigan Regional Medical Library. Additional information may be found in the School of Medicine section of this bulletin on page 466.

Arthur Neef Law Library

The Law Library, named in honor of Dean Emeritus Arthur Neef, who served as Dean of the Law School from 1936 to 1967, is located in the Law School building at the north end of the University campus. The Neef Law Library contains over 140,000 volumes making it the second largest law

library in the State of Michigan. About 700 periodicals and 500 loose-leaf services are received regularly. The Neef Law Library is one of the official depositories of U.S. Government publications. Additional information may be found in the Law School section of this bulletin on page 205.

HOUSING OFFICE

700 Merrick; 577-2116

Jeff Mossoff, Director

This office provides information regarding on-campus housing as well as administering on-campus housing owned and operated by the University.

On-campus housing for men and women students is usually available in the Helen Newberry Joy (co-ed) and Katharine F. Faville (women) Residences. The double and single room accommodations are rented on a quarterly basis. There is no food contract plan, but meals may be obtained in the University Center Building, adjacent to the Residences.

Other housing includes the recently completed Helen L. DeRoy Apartments and Forest Apartments, providing 468 housing units for graduate, professional and handicapped students. There are efficiency, one-bedroom, and two-bedroom apartments that are available furnished or unfurnished.

OFFICE OF SCHOLARSHIPS AND FINANCIAL AIDS

222 Administrative Services Building; 577-3378

If a student and his family are unable to meet educational expenses, this office will attempt to arrange sufficient aid to fulfill the student's financial needs, when funds are available.

There are four basic forms of aid: scholarships, grants, loans, and college work-study employment. These may be offered either singly or in combination. The amount of aid that a student may receive depends upon the amount of family contribution to the cost of his education, and for scholarships, upon his overall honor point average. In addition to the parental contribution, the student is expected to assist himself by using savings, earnings from summer employment, or part-time work.

Students who do not receive financial assistance from their parents may apply for aid as Independent Students. Those who wish to ascertain whether they meet the criteria for independent status are obliged to contact this office.

Graduate students seeking scholarships or fellowships should consult the Graduate Division; those seeking assistantships, their department chairman.

Wayne State University Program for Merit Scholars — The Merit Scholar Program provides full tuition scholarships for selected Michigan high school and community college students who have demonstrated outstanding scholastic ability as they graduate from their institutions. Applications and full information are available at the Undergraduate Office of Admissions.

THE UNIVERSITY OMBUDSMAN

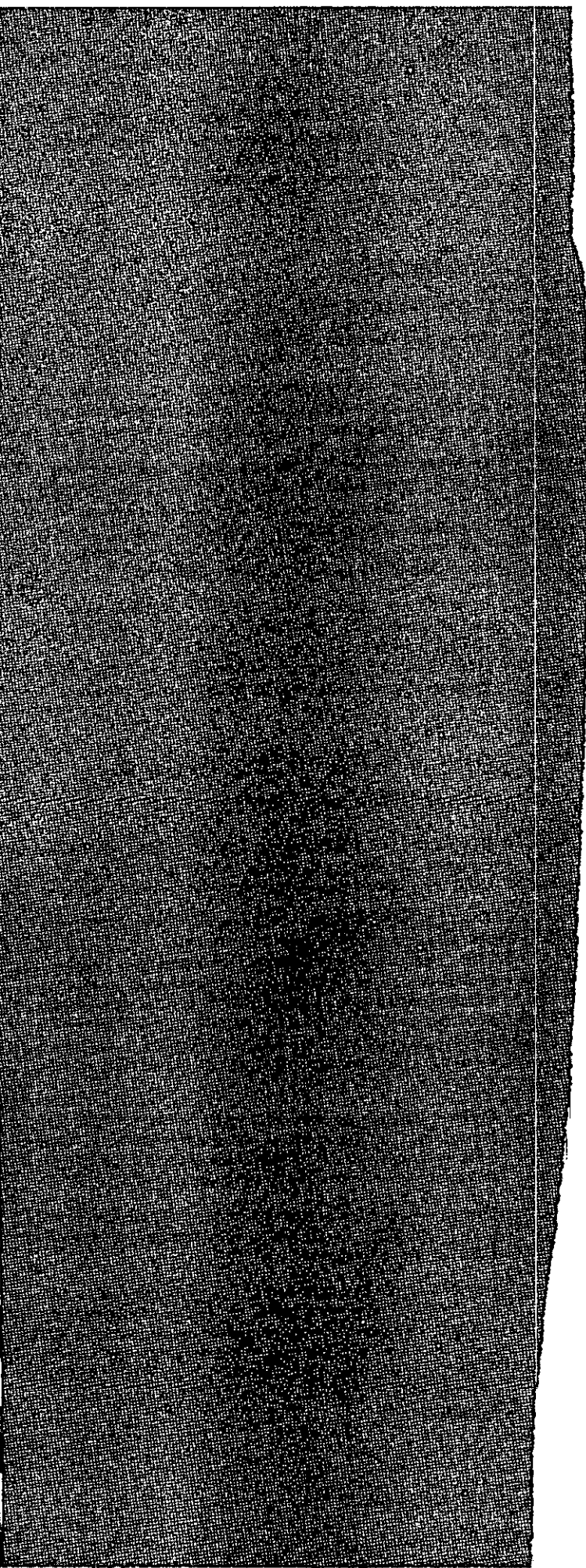
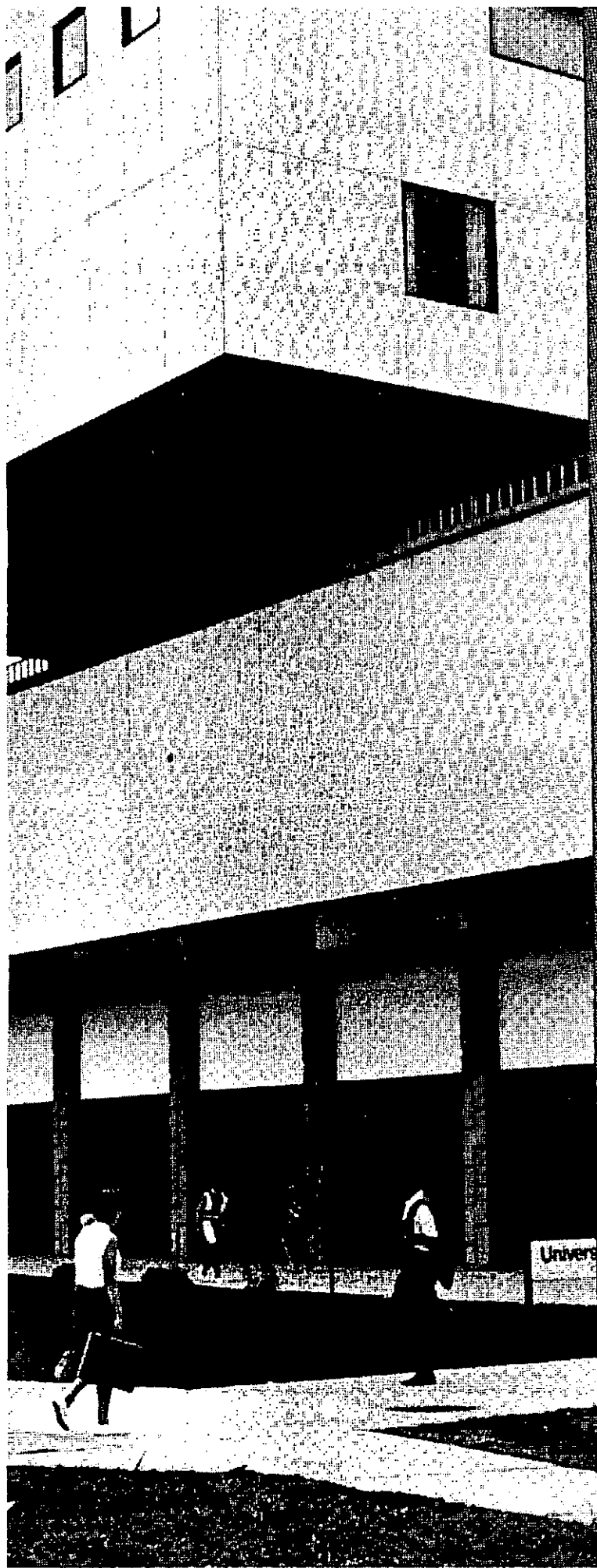
217 Student Center Building; 577-3487

Theodore B. Fleming, Ombudsman
Jean Rockwell, Associate Ombudsman

The Office of the Ombudsman, established by the Board of Governors, is charged with helping students solve University-related problems.

While Ombudsman means "grievance man" in Swedish, the student's problem does not have to be a clear cut grievance — it is enough for the student to have some question, a doubt, or some anxiety. The University-related problems which the student brings to the office of the Ombudsman may be academic and/or nonacademic in nature. Of course, some of the problems the students bring to the office are unanswerable, but usually the Ombudsman can provide the student with assistance, in many cases by referring the student to the precise place where an answer is available, and even more often by helping students solve the problem through the activities of the Office of the Ombudsman. The kinds of problems with which the Ombudsman deals can be separated into those where the student is given help in solving the problem and those where the Ombudsman keeps an injustice from being inflicted on the student.





School of Business Administration

DEAN: VICTOR C. DOHERTY

Foreword

The School of Business Administration is a professional school concerned with education in the theory and practice of business administration. The School prepares men and women for positions of leadership in private and public enterprises and to meet this objective provides programs at the undergraduate and graduate levels.

Undergraduate Program

The undergraduate program begins after students have acquired an educational foundation in the basic sciences and arts in the first two years of undergraduate work. During the third and fourth years, the student follows a plan of study in the School of Business Administration designed to provide professional education.

Students may select majors in: accounting, finance and business economics, management, and marketing. Degrees of Bachelor of Science in Business Administration or Bachelor of Arts in Business Administration are awarded.

The undergraduate program is accredited by the Accreditation Council of the American Assembly of Collegiate Schools of Business.

Graduate Program

The program leading to the Master of Business Administration degree is aimed at educating graduate students for business administration. The program requires a minimum of forty-eight credits, provided that the student has completed the pre-program foundation requirements.

UNDERGRADUATE PROGRAM

ADMISSION

The undergraduate program of the School of Business Administration is offered at the upper-division (junior-senior) level. The School of Business Administration accepts students from the several schools and colleges at Wayne State University, accredited junior and Community colleges, and other accredited colleges and universities.

At Wayne State University, the School of Business Administration has established pre-business administration curricula with the College of Liberal Arts and Monteith College. Students who wish to transfer from these colleges must satisfy the pre-business administration course requirements and have completed a minimum of eighty quarter credits with at least a 2.0 cumulative honor-point average.

Students from other accredited four-year universities and colleges or from accredited junior or community colleges must also satisfy the pre-business administration course requirements and have completed a minimum of eighty quarter credits or fifty-three semester credits with at least a 2.0 cumulative honor-point average. The maximum number of transfer credits that will be accepted from a junior or community college is ninety-six quarter credits or sixty-four semester credits. Equivalency tables have been developed with area community colleges which identify lower division community college courses that are equivalent to the lower-division pre-business administration courses at Wayne State University listed below.

An *Application for Admission* along with student records must be submitted by transfer students to the Admissions Office of Wayne State University. Qualified students will then be referred to the Admissions Office of the School of Business Administration.

Students seeking admission who are currently enrolled and who have a cumulative honor point average of less than 2.25 may be required to present final grades before formal admission action is taken.

Plan of Study

All undergraduate students in the School of Business Administration must complete the following plan of study:

1. Pre-Business Administration Course Requirements — Twenty quarter courses (Eighty credits).
2. Core Curriculum — Eleven quarter courses (Forty-four credits).
3. Major Requirements — the accounting major requires ten quarter courses (forty credits); other majors require six quarter courses (twenty-four credits).
4. Electives — the accounting major requires twenty-eight credits; other majors require forty-four credits. The required distribution of elective courses is presented below.

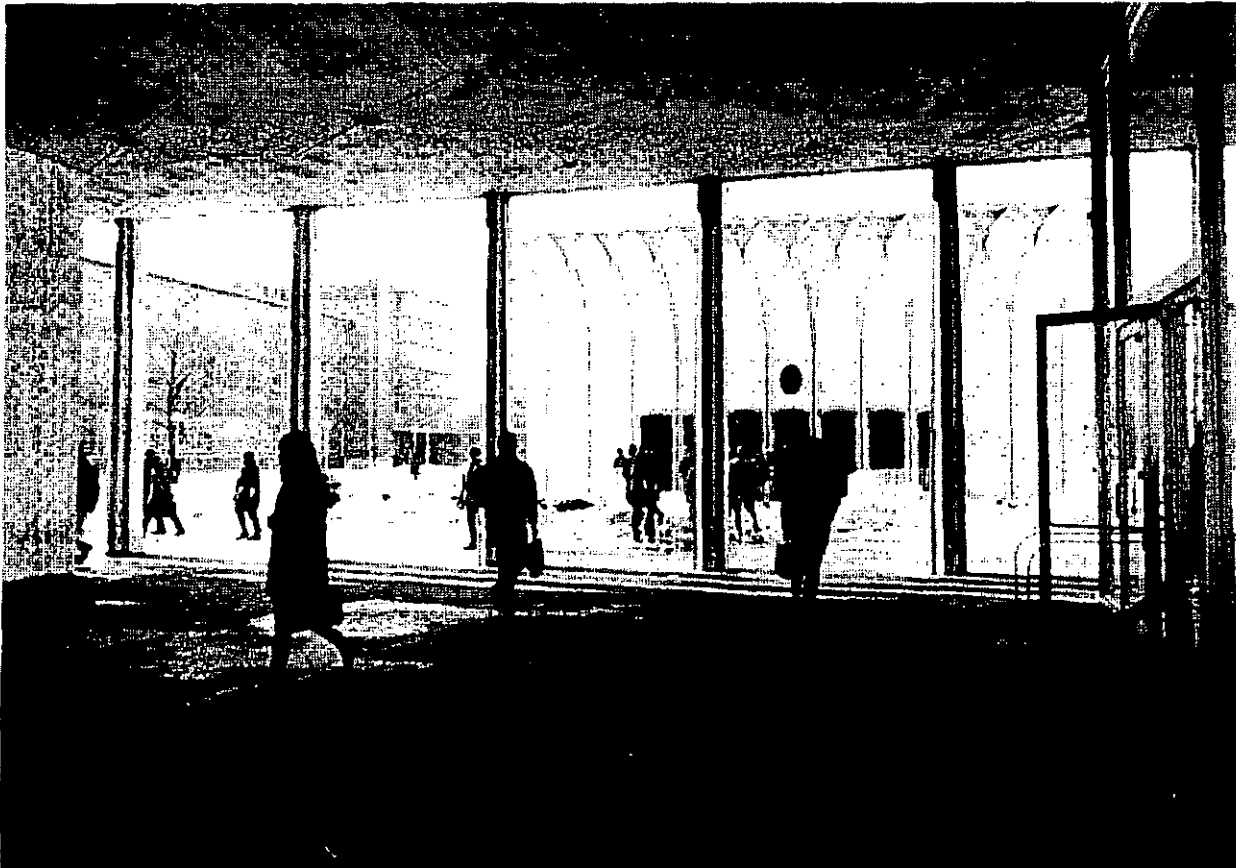
Pre-Business Administration Course Requirements

Students who have been admitted, but have not satisfied the requirements listed below, will be required to complete them within twenty-four credits following admission. The pre-business administration minimum requirements are as follows:

- Accounting three quarter courses or two semester courses in principles (Accounting 0310, 0311, and 0312 or 0313). Majors in accounting, and in finance and students specializing in operations management must complete Accounting 0312 rather than 0313. Accounting majors receive no credit for Accounting 0313.
- Business Law one course (Accounting 0351)
- Computer Science one course (Computer Science 0201)
- Economics two courses in principles (Economics 0101 and 0102)
- English two courses in composition (English 0150 and 0209) and successful completion of the English Proficiency Examination in Composition.
- Mathematics one course in college-level mathematics, algebra and finite mathematics, or calculus (Mathematics 0150 or 0151)
- Psychology one course (Psychology 0198)

- Sociology one course (Sociology 0201)
- Speech one course in public speaking (Speech 0200)
- Statistics one course (Economics 0520 for pre-business students; Finance and Business Economics 0530 for students admitted to School)
- Humanities two quarter courses or one semester course selected from the following areas: American studies, art, art history, classics, English (beyond English requirement), foreign language (beyond first year), humanities, music, theatre.
- Natural Science two quarter courses or one semester course selected from the following areas: astronomy, biology, botany, chemistry, geology, mathematics (beyond mathematics requirement), physical science, physics, zoology. Courses in computer science do not satisfy the mathematics option.
- Social Science two quarter courses or one semester course selected from the following areas: anthropology, geography, history, philosophy (not religion), political science (see American Government, page 14), psychology (beyond the introductory course), social science, sociology (beyond the introductory course).

All undergraduate students must satisfactorily complete the University requirement in the principles of American government. For the courses or course sequences which satisfy this requirement, see p. 14.



CORE CURRICULUM

In addition to the accounting course requirements listed above, all students must complete the following core courses:

	<i>Prerequisite or Limitation</i>
B A 0590 Social and Political Influences on Business	No credit after MGT 0364 or 0590 or MKT 0590
B A 0690 Business Policy	To be taken as one of last 6 courses toward bachelor's degree
FBE 0523 Financial Institutions	
FBE 0529 Business Finance	ECO 0102 and ACC 0311
FBE 0540 Quantitative Methods II: Statistical Methods	FBE 0530 or ECO 0520 or equiv. Must be satisfactorily completed in the first twenty-four credit hours after admission to the School of Business Administration.
MGT 0559 Introduction to Management	One course each in psychology and sociology
MGT 0560 Introduction to Production Management	MGT 0559
MGT 0660 Nature of the Organization	MGT 0559 or consent of instructor
MKT 0530 Marketing Management	ECO 0102
MKT 0533 Business Reports and Presentations	No credit after former MKT 0652. Successful completion of English Proficiency Examination in Composition.
MKT 0535 Marketing Analysis and Decision Making	MKT 0530 and FBE 0540. No credit after former MKT 0645.

MAJORS

Majors are offered in accounting, business economics, finance, management and organization sciences, and marketing. After selecting a major students consult the Office of Undergraduate Student Services, School of Business Administration, 103 Prentis Building, to obtain a *Plan of Work*. All courses must be taken in accordance with an approved *Plan of Work*.

ACCOUNTING (ACC)

The accounting major is designed for students planning careers in professional, corporate, or governmental accounting fields. Students who select the accounting major must complete the following courses:

ACC 0353	Business Law — Corporations, Partnerships
ACC 0510	Advanced Accounting Theory I
ACC 0511	Advanced Accounting Theory II
ACC 0512	Advanced Accounting Theory III
ACC 0513	Accounting Information Systems
ACC 0514	Auditing
ACC 0516	Cost Accounting
ACC 0517	Taxes on Income
ECO 0508	Public Control of Business

One of the following:

ACC 0613	Accounting Under SEC and State Regulations
ACC 0615	Michigan Taxes
ACC 0617	Governmental and Not-for-Profit Accounting
FBE 0627	Advanced Business Finance

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FINANCE AND BUSINESS ECONOMICS (FBE)

Finance

The finance major is designed for students planning careers in banking, security analysis and management, corporation asset management, and related areas of finance. Students majoring in finance complete the following courses:

FBE 0621	The Stock Market and Investments
FBE 0622	Portfolio Management
FBE 0627	Advanced Business Finance
ACC 0510	Advanced Accounting Theory I
ACC 0511	Advanced Accounting Theory II

One course from a departmental list

Business Economics

The major in business economics is designed for students planning careers as applied business economists in business, industry and government. Students majoring in business economics complete the following courses:

FBE 0405	Business Economics
FBE 0406	Current Business Conditions
FBE 0524	Business and the Public Interest

Three courses from a departmental list

MANAGEMENT AND ORGANIZATION SCIENCES (MGT)

The major in management and organization sciences is designed for students planning managerial careers in business, industry, and government. Management theory, concepts, and practice are presented. The major is oriented toward problem recognition and solution.

General Management

MGT 0561	Management Decision Making
MGT 0574	Collective Bargaining
MGT 0577	Manpower Management
MGT 0661	Management Planning and Control Systems
MGT 0662	Behavior in Organizations

One additional management course

Operations Management

MGT 0561	Management Decision Making
MGT 0574	Collective Bargaining
MGT 0662	Behavior in Organizations
MGT 0667	Models in Operations Management
MGT 0696	Seminar in Operations Management
ACC 0516	Cost Accounting

Personnel and Industrial Relations

MGT 0570	Personnel Administration
MGT 0574	Collective Bargaining
MGT 0577	Manpower Management
MGT 0662	Behavior in Organizations
MGT 0674	Administering the Labor Agreement
MGT 0578	Current Issues in Employee Relations

Small Business Management

MGT 0566	Small Business Management
MGT 0567	Small Business Management Problems
MGT 0568	Creating a Small Business

Three of the following:

ACC 0353	Business Law — Corporations, Partnerships
MKT 0570	Retail Management
MKT 0648	Purchasing Management
MGT 0570	Personnel Administration
MGT 0574	Collective Bargaining
MGT 0662	Behavior in Organizations

MARKETING (MKT)

The major in marketing is designed for students planning careers in advertising, public relations, research, retailing, sales management and materials management. It provides the concepts and methods by which managers identify and solve the marketing problems and opportunities of either business or non-business organizations through market target, product, price, distribution and promotion decisions.

Students who major in marketing will complete the following three courses, and then select an area of specialization:

MKT 0545	Consumer Behavior
MKT 0585	Promotion Strategy
MKT 0641	Market Research and Analysis

Advertising/Public Relations

MKT 0549	Principles of Advertising
MKT 0646	Public Relations of Business

One course from a departmental list

Retailing

MKT 0570	Retail Management
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Two courses from a departmental list

Sales Management

MKT 0548	Market Forecasting
MKT 0644	Sales Management

One course from a departmental list

ELECTIVES

Electives form an integral part of an education in business administration. A student's selection of elective courses should be guided in part by his or her career objectives. These elective courses constitute study in addition to the pre-business administration, core, and major requirements listed on the student's *Plan of Work*.

Accounting majors must complete:

1. Two courses (eight credits) in business electives. These courses *must* be selected from courses offered in the School of Business Administration. Upper division courses offered in the Department of Economics (0300 level or higher) qualify as potential business electives. Business elective credit will be granted only for courses at the junior and senior (upper-division) level. All proposed business elective courses *must* be approved prior to registration by the chairman of the accounting department or his designee.

2. Twenty credits in non-business elective courses. This selection *must* be made from courses offered outside the School of Business Administration. Upper division courses in economics (0300 level or higher) and physical education or ROTC credits may *not* be used to satisfy this requirement. After a student has been admitted to the School of Business Administration, outstanding non-business elective courses *must* be taken at the 0300 level (junior and senior) or higher.

Other majors must complete:

1. Two courses (eight credits) in business electives. These courses *must* be selected from courses offered in the School of Business Administration. Upper-division courses in the Department of Economics (0300 level or higher) qualify as business electives. Business elective credit will be granted only for courses at the junior and senior (upper-division) level.

2. Twenty credits in non-business elective courses. This selection *must* be made from courses offered outside the School of Business Administration. Upper-division courses in the Department of Economics (0300 level or higher) and physical education or ROTC credits may *not* be used to satisfy this requirement.

After a student has been admitted to the School of Business Administration, outstanding non-business elective courses *must* be taken at the 0300 level (junior and senior) or higher.

3. Sixteen credits in free electives. Students may select courses offered in the School of Business Administration or in another School or College of the University.

After a student has been admitted to the School of Business Administration, outstanding free electives *must* be taken at the 0300 level (junior and senior) or higher.

No credit will be allowed for remedial courses of a sub-collegiate level.

DEGREE REQUIREMENTS

BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION

To receive the degree of Bachelor of Science in Business Administration a student must:

1. Satisfactorily complete 192 credits in course work.
2. Satisfactorily complete the pre-business administration, core, major, and elective course requirements.
3. Take at least twenty courses (eighty credits) in business and economic subjects and at least twenty courses (eighty credits) in subjects other than business and economics. Up to twelve credits in lower-division (freshman and sophomore) economics courses may be counted in either of the above two curricular categories. No more than twenty-eight courses (112 credits) may be taken in either of the above two curricular categories. Careful observance of the course requirements as listed on the student's plan of work along with observance of the rules listed above for selection of elective courses will insure compliance with this requirement.

4. Satisfactory completion of a course in American Government. The following courses and sequences apply:

(1) History 0201, 0202, and 0203, (2) History 0516 and 0517, (3) Political Science 0101, (4) Political Science 0103, (5) Political Science 0401 and 0402, (6) Social Science 0191 and 0192, (7) Science of Society (Monteith) 0131, 0132, 0133, 0231, and 0232.

5. Achieve at least a 2.0 cumulative honor point average and a 2.0 major honor point average.

BACHELOR OF ARTS IN BUSINESS ADMINISTRATION

To receive the degree of Bachelor of Arts in Business Administration, a student must complete the same requirements as for the Bachelor of Science degree as explained above, except that he or she must complete four to sixteen credits in a single foreign language. The number of credits is determined by the following:

1. Sixteen credits for the student who is beginning the study of the language.
2. Four to sixteen credits, depending upon placement by the foreign language department concerned, for the student who is continuing the study of the language.

TEACHING CERTIFICATE

School of Business Administration students may secure a teaching certificate through the College of Education while qualifying for the bachelor's degree. For specific requirements consult the Office of Undergraduate Student Services, School of Business Administration.

MORTUARY SCIENCE

Mortuary science students may secure a bachelor's degree in business administration in addition to the Certificate in Mortuary Science. For specific requirements, consult the Office of Undergraduate Student Services, School of Business Administration.

PROFESSIONAL DEVELOPMENT CO-OP PROGRAM

The School of Business Administration offers a Co-op Program of alternating quarters of work and study to a number of eligible students.

The program may be undertaken at the beginning of the junior year or upon admission to the School of Business Administration if the student has previously earned more than the minimum eighty credits required for admission to the School. Students interested in this program should contact the Cooperative Education Office, Main Floor, Mackenzie Hall.

Students admitted to the program with minimum junior standing should recognize that an additional year will be needed to fulfill the requirements for the bachelor's degree.

ACADEMIC PROCEDURES

Undergraduate Program

For complete information regarding academic rules and regulations of the University, students should consult the General Information section of this bulletin, beginning on page 5. The following additions and amendments pertain to the School of Business Administration.

All students must fulfill the upper-division requirements of the School of Business Administration in effect at the time of admission to the School of Business Administration.

ADMISSION TO CLASS

Students who are late registrants or who wish to file a *Change of Elections* will not be added to any class that meets once a week after the second class meeting. For classes meeting twice a week, no student will be added after the third class meeting.

APPLICATION FOR DEGREE

Each candidate must file an *Application for Degree* in the Records Office, 150 Administrative Services Building, not later than the last day of the final registration period for the quarter in which he or she expects to complete the requirements for the degree. If an *Application for Degree* was filed for a previous quarter in which the student did not graduate, a new application is required.

ATTENDANCE

Regular attendance is a necessary condition for success in college study. Each instructor will announce his or her attendance standards at the beginning of the term.

All candidates for degrees are expected to be present at commencement.

CHANGE OF MAJOR

Students wishing to change majors within the School of Business Administration should submit a request in writing to the Undergraduate Student Services Office, 103 Prentiss Building. A *Plan of Work* for the requested major will be issued. Students are advised that such changes occurring late in their program may result in additional coursework beyond the minimum requirement of 192 credits.

CONDUCT

Each student is subject to official regulations governing student activities and student behavior. Furthermore, it is the

responsibility of each student to adhere to the principles of academic integrity.

Academic integrity means that a student is honest with himself, his fellow students, his instructors, and the University in matters concerning his or her educational endeavors. Thus, a student should not falsely claim the work of another as his own, or misrepresent himself so that the measures of his academic performance do not reflect his own work or personal knowledge.

If there are reasonable grounds to believe that a student has disregarded the regulations or his responsibilities, he or she may be disciplined. Such discipline may include suspension or dismissal, but no dismissal will be directed without reasonable opportunity for an appropriate hearing.

DEGREES

Degrees are granted upon the recommendation of the faculty of the School of Business Administration. Consideration is given to both scholastic attainment and to the standards and rules of the School.

DIRECTED STUDY

A directed study involves advanced readings and research or a tutorial under the supervision of a faculty member in areas of special interest to the student and faculty member. Credits vary between one and four. A cumulative honor point average of 2.75 is required to be eligible for consideration. Eligible students must complete a proposal form and obtain required signatures prior to registration. No more than four credits in directed study are permitted in any quarter. A total of no more than eight credits in directed study may be used to fulfill graduation requirements.

ENGLISH REQUIREMENT

Each student must pass the English Proficiency Examination in Composition within the first twenty-four credits following admission to the School of Business Administration. Times and locations of the testing sessions are listed in the *Schedule of Classes* under Department of English. Students who fail the examination and who have taken twenty-four credits after admission to the School of Business Administration will be excluded from taking any further courses until the proficiency examination is successfully completed. Entering students should take the examination as soon as possible in order to avail themselves of remedial work if needed.

No credit toward a degree in business administration is granted for English 0208, Writing Workshop. A maximum of four credits toward a degree in business administration is granted for English 0150, Freshman Composition.

GRADUATION WITH DISTINCTION

A candidate eligible for the bachelor's degree may receive a special diploma "with distinction" or "with high distinction" as follows:

Distinction — An honor point average of 3.3 if the candidate has earned at least 150 credits in residence, 3.4 if between 90 and 149 credits.

High Distinction — An honor point average of 3.6 if the candidate has earned at least 150 credits in residence, 3.7 if between 90 and 149 credits.

GRIEVANCE PROCEDURE

Students with a course-related grievance should first contact the instructor of the course. Should the grievance remain unresolved, the student should contact the Chairman of the department in which the course is listed. If the problem remains unresolved at this level, the student should refer it to the Assistant Dean for Academic Programs.

Non-classroom-related grievances should be brought directly to a Departmental Chairman or to the Office of the Dean. Additionally, the University Ombudsman (see p. 37) is available to all students for the resolution of University-related problems.

NORMAL PROGRAM LOAD

The normal academic load for an undergraduate student in the School of Business Administration is from twelve to eighteen credits each quarter, depending upon the particular courses elected. No student should expect to carry a full load and at the same time do outside work of any extent. Students desiring to carry more than the normal load must obtain written permission from the Dean or his representative prior to registration. Excess credits will not be honored when taken without prior approval.

PASSED-NOT PASSED PROGRAM

Undergraduate students in the School of Business Administration may *not* take courses offered by the School of Business Administration on a passed-not passed basis.

PROBATION AND EXCLUSION

A student who registers for but repeatedly fails to complete his program and thus make normal progress toward graduation may be placed on probation.

If a student's academic work is unsatisfactory (less than 2.0 cumulative honor point average or less than 2.0 honor point average in his or her major), the student will be placed on probation with the understanding that he or she will be expected to achieve a cumulative 2.0 honor point average within the next sixteen credits earned, or a 2.0 major honor point average within the next eight credits earned in the major. If probationary status is not removed within the prescribed number of credits, the student is subject to either temporary suspension or permanent dismissal from the School of Business Administration.

The second (or subsequent) time(s) a student is placed on probation, he or she is subject to immediate exclusion from the School of Business Administration.

In the event of a temporary suspension, readmission to the School of Business Administration will be considered only on the recommendation of the Undergraduate Committee.¹ If after readmission to the School of Business Administration, the academic deficiency is not corrected within the first twelve credits, the student will be permanently dismissed from the School. Class work taken at another institution during a period of temporary suspension will not be considered for transfer credit.

While on probation, a student may not represent the School in student activities.

The exclusion of any student will be reviewed by the Undergraduate Committee of the School of Business Administration. A student on probation who fails to complete the courses for which he registers, without good reason as determined by the Dean or his designee, shall not be permitted to re-register in the School of Business Administration.

The Undergraduate Committee may, upon the recommendation of the student's department chairman, permanently exclude a student from a major, if the student fails to remove himself or herself from probationary status within the prescribed number of credit hours.

In matters where the School's final decision is based upon the evaluation of a student's academic performance and when review procedures available to him within the School have been exhausted, the student may request the Provost to review that decision on the record.

REPEATING OF COURSES

No course in which a student has received a passing grade or mark may be repeated without the prior written approval of the Director of Student Services of the School of Business Administration.

RESIDENCE

After admission to the School of Business Administration, a student may not take course work and receive transfer credit for courses taken at the lower division (freshman and sophomore) at another institution.

The final year and the last forty-eight credits must be taken at Wayne State University. In exceptional cases a limited number of the last forty-eight credits elected toward a degree may be taken in another accredited college or university. All such cases must receive the approval of the Dean before the work is undertaken.

Students returning to the School after a five-year absence are required to conform to the requirements in effect at the time of their return.

RETENTION OF RECORDS

Term papers and examinations shall either be returned to the student or retained by the instructor for a period of ninety

days. Thereafter they may be destroyed. Instructors shall retain grade books for at least five years following the end of a term and instructors who leave the institution shall give grade books for courses conducted during the past five years to their department chairman. Five years after the end of a course, grade books may be returned to the instructor or destroyed by the department.

WAIVER OF COURSE REQUIREMENT

Students are expected to comply with course and degree requirements as listed in this bulletin and on their *Plans of Work*. They may petition for a modification in course or degree requirements by completing a waiver form and submitting it to the Office of Undergraduate Student Services.

Waiver of a school requirement requires the recommendation of the Undergraduate Committee and the *final approval* of the Assistant Dean for Academic Programs. Waiver of a departmental requirement requires the recommendation of the Departmental Chairman and the *final approval* of the Assistant Dean for Academic Programs.

Undergraduate students are advised that no faculty member is authorized to approve a change in course or degree requirements.

¹The Undergraduate Committee is composed of the four Departmental Chairmen and is chaired by the Assistant Dean for Academic Programs.

GRADUATE PROGRAM

The graduate program leading to the Master of Business Administration degree provides a professional education in business administration. The program incorporates elements of and builds upon a common body of knowledge in business and administration. It is designed to provide breadth, depth, flexibility, and integration.

FOUNDATION REQUIREMENTS

The M.B.A. program includes and builds upon a recognized common body of knowledge. A baccalaureate degree from a regionally accredited institution normally provides a portion of the foundation needed prior to beginning the forty-eight credit program. Applicants with baccalaureate degrees who do not meet all foundation requirements before beginning the program can obtain assistance through special courses provided by the School of Business Administration. In general, a baccalaureate degree in Business Administration fulfills requirements but each applicant's background will be individually examined by the Graduate Committee to determine if additional course work is needed. All foundation requirements are expected to be completed before a student may begin core, concentration, and elective courses.

CORE

Six out of seven core courses are required of all graduate students:

ACC 0700	Managerial Accounting
BA 0774	Business and Contemporary Society
BA 0790	Seminar in Business Policy
FBE 0701	Quantitative Methods Applied to Business Decisions
FBE 0782	Managerial Economics and Finance
MGT 0706	Management and the Organization
MKT 0703	Marketing Strategy

The core courses are designed to provide breadth in the major areas of business administration. All foundation requirements must be completed before a student may begin core courses.

No core credit will be allowed for the core course in the student's area of concentration. However, a student may elect the core course in his or her area of concentration for elective credit with the prior approval of the graduate adviser.

Concentration Area	Core Course Waived
Accounting	ACC 0700
Business Economics	FBE 0782
Finance	FBE 0782
Industrial Relations/Personnel	MGT 0706
Management	MGT 0706
Marketing	MKT 0703
Operations Management	FBE 0701

Students with undergraduate degrees awarded within five years prior to the date of admission to the graduate program, with a major in either management or marketing, will have another 0700-level management or marketing course substituted for the core requirement listed above.

¹The Graduate Committee is composed of the four Departmental Chairmen, and is chaired by the Assistant Dean for Academic Programs.

CONCENTRATION AREA

The purpose of a concentration area is to provide academic depth in a specialization that will contribute to the student's attainment of his or her career objectives. A concentration area consists of three courses selected to meet the particular professional needs of the candidate.

The choice of a specific concentration area can be made at the time of admission or later. The student may wish to consult one or more graduate advisers before making a selection; however, after choosing a concentration area, the selection of specific courses must be approved prior to registration by the graduate adviser assigned to the student and by the Graduate Officer.

Listed below are illustrative courses in the concentration areas.

ACCOUNTING

Accounting 0712	Tax Problems in Business Affairs
Accounting 0713	Advanced Cost Accounting, Control, and Analysis
Accounting 0718	Auditing
<i>or</i>	
Accounting 0714	Advanced Tax Problems
Accounting 0715	Information Systems for Planning and Control
Accounting 0719	Advanced Auditing

BUSINESS ECONOMICS

Three of the following:

Fin. & Bus. Econ. 0709	Money and Capital Markets
Fin. & Bus. Econ. 0755	Business Applications of Multivariate Methods
Fin. & Bus. Econ. 0756	Managerial Forecasting Techniques
Fin. & Bus. Econ. 0783	Business Conditions Analysis
Fin. & Bus. Econ. 0785	Seminar in Business Economics

FINANCE

Fin. & Bus. Econ. 0721	Asset Management
Fin. & Bus. Econ. 0722	Long-Term Financing Policies

One of the following:

Fin. & Bus. Econ. 0709	Money and Capital Markets
Fin. & Bus. Econ. 0723	Investment Policies
Fin. & Bus. Econ. 0796	Seminar in Finance

INDUSTRIAL RELATIONS/PERSONNEL

Management 0775	Labor Conflict and Conflict Resolution
Management 0777	Labor Relations and Social Problems
Management 0898	Seminar in Industrial Relations

MANAGEMENT

Management 0761	Human Behavior in Organizations
Management 0762	Complex Organizations

One of the following:

Management 0763	Organizational Change and Development
Management 0764	Management of Human Resources
Management 0765	Development of Interpersonal Skills for Managers
Management 0768	Executive Decision Making
Management 0769	Executive Development

MARKETING

Marketing 0740	Marketing Problems
Marketing 0745	Marketing Research and Methodology

One of the following:

Marketing 0742	Sales Management Problems
Marketing 0743	Advertising Management
Marketing 0797	Seminar in Marketing

OPERATIONS MANAGEMENT

Management 0751	Operations Management I
Management 0753	Operations Management II
Management 0754	Seminar in Operations Management

ELECTIVES

After selecting a concentration area, each M.B.A. student choosing the course work degree option selects three elective courses with the assistance and approval of his or her academic adviser. The approval of the adviser must be obtained prior to registering for the course. The purpose of these electives is to provide the student with additional breadth in business administration. Electives may be selected from courses carrying graduate credit offered by the School of Business Administration or another college of the university. The graduate adviser's approval is needed if a student wishes to take an elective before completing core courses.

Elective courses must meet course distribution and course level requirements stated below.

M.B.A. — ACCOUNTING PLAN OF WORK

The School of Business Administration has a special *Plan of Work* for students who hold a baccalaureate degree in a field other than accounting and who wish to qualify for the CPA examination. Under this plan, a student may earn a major in accounting while attaining a Master of Business Administration degree.

The course distribution and course level requirements stated below may result in additional course work for students pursuing this option. For specific details consult the chairman of the accounting department, a graduate adviser in accounting, or the Office of Graduate Student Services.

GRADUATE ADMISSION

For complete information regarding graduate rules and regulations, students should consult the Graduate Division section of this bulletin, beginning on page 19. The following additions and amendments pertain to the School of Business Administration.

Admission to the Master of Business Administration program is limited to holders of baccalaureate degrees from regionally accredited institutions who demonstrate high promise of success in graduate business study. Several measures of high promise of success may be included in the evaluation of an applicant for admission. Among the criteria which may be considered are the applicant's:

1. Performance on the Graduate Management Admission Test (GMAT).

2. Undergraduate grade averages and the trend of grades during undergraduate education.

3. Other indicators of high promise of success such as relevant work and leadership experience.

The Graduate Committee is authorized to review the credentials of each applicant. Final approval of the applicant's admission to graduate study in business is authorized by the Dean of the School of Business Administration or the Dean's designee, upon the recommendations by the Graduate Committee. Appeals of an unfavorable admission decision may be made in writing to the Assistant Dean for Academic Programs, School of Business Administration.

Applications for graduate admission to the School of Business Administration must be received by July 15 for the fall quarter, by November 10 for the winter quarter, by February 15 for the spring quarter, and by May 15 for the summer quarter.

A completed *Application for Graduate Admission*, the application fee, and an official transcript from each college or university attended are required before a student can be considered for admission to graduate study.

The Graduate Management Admission Test (GMAT) must be taken prior to admission to graduate study. This test is a three and one-half hour aptitude test designed to measure certain mental abilities and skills important in the study of management. The GMAT is entirely in English and contains both verbal and quantitative material designed to test ability to read, understand, and reason logically. Publications including samples of the GMAT are available at university and commercial bookstores.

Since the GMAT is offered only four times a year with closing dates set approximately three weeks before the test date, it is important that a student contemplating graduate study in business and administration make arrangements to take the test at the earliest possible date. Address all correspondence regarding registration, test centers, tickets of admission to the test, and score reports to: Graduate Management Admission Test, Educational Testing Service, Box 966, Princeton, New Jersey 08540.

Order forms for the *GMAT Bulletin of Information for Candidates* can be obtained from the Office of Graduate Student Services, 105 M Prentis Building or from the University Testing and Evaluation Office, 343 Mackenzie Hall. A limited supply of current GMAT Bulletins of Information is available at these locations.

ACADEMIC PROCEDURES

Graduate Program

Graduate students are advised that in addition to the policies, procedures, and rules specified by the School of Business Administration, additional regulations and requirements of Wayne State University's Graduate Division may apply. See pages 19 - 30 of this bulletin.

Certain Undergraduate Academic Policies, Procedures, and Rules also apply to graduate students; Admission to Class, Application for Degree, Attendance, Conduct, Degrees, Repeating of Courses, and Retention of Records. See pp. 9-18. above, for these policies.

ACADEMIC STANDING

Students who have been admitted to the Graduate Program on probation are expected to remove the probationary status by the completion of the first sixteen credits of course work (exclusive of foundation requirements) with a 3.0 honor point average. Failure to do so will result in release from the program.

Students admitted to regular status or those who have attained regular status will be given an academic warning at any time their graduate average becomes less than 3.0. After an academic warning, students will be permitted twelve credits to attain a cumulative 3.0 honor point average. Failure to do so within this credit-hour limit will result in release from the program.

ADVISERS

A graduate adviser is appointed at the time the student selects a concentration area. The adviser assists the student in planning a program of study, approves a *Plan of Work*, approves an essay or thesis where applicable, and arranges for the final oral examination where required. The student must obtain the adviser's approval before taking specific concentration and elective courses.

Credit may be disallowed for concentration and elective courses taken without prior approval of the student's adviser.

COURSE DISTRIBUTION REQUIREMENT

The graduate program terminating in the MBA degree is designed to be broad in nature and aimed at general competence for overall management. Of the total of six concentration and elective courses, MBA students may take a maximum of four courses in one department. The remaining two courses must be taken in two different departments.

CANDIDACY

Candidacy is an advanced status authorized by the Graduate Office of the School of Business Administration upon the satisfactory completion of all foundation requirements and the completion of the first sixteen credits in approved graduate course work with a cumulative honor point average of 3.0 or higher.

COURSE LEVEL REQUIREMENT

MBA students are required to take their core, concentration, and elective course work in classes reserved exclusively for graduate students. At Wayne State University, these classes are numbered at the 0700 level or above. A graduate student must obtain the specific written approval of his or her graduate adviser and the Assistant Dean for Academic Programs prior to registering for a course numbered below the 0700 level. This requirement does not apply to foundation courses.

FOUNDATION REQUIREMENTS

If courses proposed to satisfy the foundation requirements to the MBA program are over five years old, the Graduate Committee may require the applicant to demonstrate proficiency in the subject matter either by interview with a faculty member or by taking an equivalent course by examination. The Graduate Committee will take into consideration the applicant's relevant course grades, nature of present occupation, and GMAT score before exercising this option.

MAXIMUM CREDIT LOAD

A student with a strong academic record who is devoting full-time to graduate study and who is carrying no outside employment may register in a program *not to exceed sixteen credits per quarter*. The student who is engaged in part-time work should limit his registration in proportion to the amount of his outside work. A student employed full-time will normally not register in excess of eight graduate credits. A student working full-time who desires to carry more than eight credits, must get permission from his Graduate Officer or Dean. *Graduate assistants are required to register for six to twelve credits each quarter.*

OPTIONS FOR DEGREE

The Master of Business Administration degree is awarded upon completion of one of the following options:

Plan A — Thirty-six credits in course work plus a twelve credit thesis with an honor point average of not less than 3.0.

Plan B — Forty-four credits in course work plus a four credit essay with an honor point average of not less than 3.0.

Plan C — Forty-eight credits in course work with an honor point average of not less than 3.0.

A final oral examination is required of candidates taking *Plan A* or *Plan B*. This requirement gives the candidate an opportunity to demonstrate that he or she can organize, synthesize, and interpret knowledge gained from course work and essay or thesis, and can express himself or herself clearly and constructively.

When an essay or a thesis is authorized by an adviser, strict adherence to the provisions set forth in an accepted handbook of style (see Graduate Division section, page 26) is required of all students. Essays and theses must be approved in final draft form before the end of the quarter prior to that in which it is expected that the degree will be granted.

Each option must meet the course distribution requirement stated above.

PASSED-NOT PASSED PROGRAM

Graduate students may *not* take foundation requirements or final graduate program requirements on a passed-not passed basis.

PLAN OF WORK

All course work must be in accordance with an approved *Plan of Work* on file in the office of Graduate Student Services. No credit will be granted for graduate courses in business administration taken at Wayne State University prior to admission to the School of Business Administration. Only the Graduate Committee is authorized to approve changes affecting a student's foundation requirements or core courses. The graduate adviser's authority is limited to concentration and elective courses.

TIME LIMITATION

Students have a six-year time limit to complete all requirements for the master's degree. The six-year period begins with the end of the quarter during which the student has taken work which applies toward meeting the final forty-eight credit requirement of the degree. The School reserves the right of revalidation of over-age credits which are between six and ten years old and which represent courses completed at Wayne State University. Students are not permitted to revalidate credits earned at other institutions. In revalidation cases the Graduate Committee will set a terminal date for completion of all degree requirements, including such additional requirements as may be prescribed to revalidate the over-age credits. Time extensions beyond these conditions are authorized only for conditions clearly beyond the student's control.

TRANSFER OF CREDITS

Graduate transfer credit for core, concentration, or elective courses from either a Wayne State University graduate program or a graduate program at another institution is not routinely granted. A petition for transfer credit must be initiated by the student in the form of a letter to the Assistant Dean for Academic Programs, prior to the completion of the first sixteen credits in graduate course work. To be eligible for consideration for transfer of credit, the following conditions must be satisfied:

1. The course must have been taken at a regionally accredited college or university;
2. The course must have been taken in a class reserved exclusively for graduate students;
3. A letter grade of B or higher must have been awarded; passed-not passed grading is not acceptable.
4. Course must be relevant to the student's *Plan of Work* as approved by the Graduate Committee or the student's adviser.
5. Course may not be more than five years old.

A maximum of eight quarter credits (two courses) may be transferred.

FINANCIAL AIDS AND AWARDS

SCHOLARSHIPS

The following scholarships give preference to students in the School of Business Administration:

American Metal Climax Foundation—Kawneer Division Scholarship. Awarded to undergraduate students in Business Administration.

The Morris H. Blumberg Fund. Established to aid students interested in the area of small business.

Chrysler Corporation. Open to undergraduate students studying business.

Sam and Leonard Fink Memorial Fellowship. Open to undergraduate business students.

Evelyn McCabe Foundation Scholarship. Open to undergraduate accounting majors.

George M. and Mabel H. Slocum Foundation Scholarship in Advertising. Open to undergraduate students in advertising.

Information about these fellowships and scholarships can be obtained from the Director of Student Services, 105 M Prentis Building. For information about other financial aids students should contact the Office of Scholarships and Financial Aids, 222 Administrative Services Building.

ASSISTANTSHIPS

A limited number of graduate assistantships are available. For further information write to the Department Chairman who heads your area of interest, or to the Director of Student Services, 105 M Prentis Building, School of Business Administration, Wayne State University, Detroit, Michigan 48202.

AWARDS

Alpha Kappa Psi Scholarship Award. Awarded annually to the student in business administration who has attained the highest scholastic average for three years of collegiate work in this University.

American Marketing Association Award. Awarded by the Detroit Chapter to the leading student in marketing.

Beta Gamma—Edward G. Eriksen Scholarship Honor Award. Established by Beta Gamma, honorary business administration society, in memory of Edward G. Eriksen. A cash award of \$25 to be awarded each year for ten years to the business administration graduating senior with the highest scholarship.

Beta Gamma Plaque. Awarded annually to the graduating business administration student achieving the highest scholarship.

Delta Sigma Pi Scholarship Award. Awarded annually to the senior with the highest scholarship in business administration.

Phi Gamma Nu Scholarship Award. Awarded annually to the senior with the highest scholarship in business administration.

Sales/Marketing Executives of Detroit, Inc. Plaque awarded annually to outstanding student in marketing.

PLACEMENT SERVICES

The School of Business Administration provides a full-time Placement Office to assist students in finding employment both while going to school and upon obtaining their degree. Prospective employers visit the school twice each year to recruit graduating seniors and MBA students for positions with their firms. Career counseling and other placement services, including a career/placement library, are also available for Business Administration students.

BUREAU OF BUSINESS RESEARCH

The Bureau of Business Research is concerned with grant supported faculty research, clinical programs, and professional services.

ORGANIZATIONS

Alpha Kappa Psi, oldest national professional fraternity in business, established a local chapter at Wayne State University in 1941. (Joseph Razek, Faculty Adviser)

The American Marketing Association is an organization dedicated to the advancement of science in marketing. Collegiate chapters promote professionalism and practical education for marketing students through exposure to, and assistance from, practitioners of the discipline. (Edward A. Riordan, Faculty Adviser)

Association Of Black Business Students was formed in the fall quarter of 1969, to better prepare students for the business world by providing an environment for professional growth and development, through the encouragement of interaction among business students and with the business communities.

Beta Alpha, an honorary accounting society was founded in 1976 to provide recognition for outstanding accounting and finance majors and to promote professionalism. Students who have completed sixteen credits of accounting including Accounting 0510, Advanced Accounting Theory I, and have an honor-point average of at least 3.0 in their accounting courses, and an overall honor point average of at least 3.0 in their last sixty credits are eligible for membership. (Joseph Razek, Faculty Adviser)

Beta Gamma, honorary business administration society, was founded at Wayne State University in 1937 with the purpose of honoring students who have achieved outstanding scholastic records in the field of business administration. Seniors with an honor point average of 3.0 and juniors with an honor point average of 3.2 are eligible for membership. (James Wallis, Faculty Adviser)

Delta Sigma Pi, an international professional fraternity in business administration, organized a local chapter at Wayne State University in 1949. (Bruce E. DeSpelder, Faculty Adviser)

Graduate business students at Wayne State University have a local group of the *National Affiliation of Concerned Busi-*

ness Students. The organization sponsors interaction, discussion and planning among business leaders, students and faculty on business and its relations to society and other current issues. (Gerald F. Cavanagh, Faculty Adviser)

Phi Gamma Nu, national professional sorority in commerce established at Wayne State University in May, 1949, is open, by invitation, to women in business administration, economics, and business education.

Sigma Iota Epsilon, national honorary and professional fraternity of management students, student division, Academy of Management. Membership acknowledges outstanding scholarship in the field of management. Seniors with an honor point average of 3.0 and graduate students with an honor point average of 3.25 are eligible for membership. (Bruce E. DeSpelder, Faculty Adviser)

The *Student Senate* is composed of one representative from each recognized business administration student organization, other students appointed by the Dean, and the Dean of the School of Business Administration, *ex officio.*

COURSES OF INSTRUCTION¹

Accounting (ACC)

Undergraduate Courses

0310. Elementary Accounting Theory I. Cr. 4.

Prereq: sophomore standing. ECO 0101 and 0102, MAT 0105. The theory of accounting for business assets and the interpretation and communication of accounting data.

0311. Elementary Accounting Theory II. Cr. 4.

Prereq: ACC 0310. Continuation of Accounting 0310.

0312. Elementary Accounting Theory III. Cr. 4.

No credit after Accounting 0313, 0410, or 0518. Prereq: sophomore standing. Continuation of Accounting 0311 with an integrated application of accounting and automatic data processing principles, practices, and procedures utilizing unit record equipment in the solution of business problems. Primarily intended for accounting majors.

0313. Administrative Accounting. Cr. 4.

No credit after Accounting 0312, 0410, or 0518. Prereq: ACC 0311, sophomore standing. No credit for accounting majors. The use of accounting for administrative information and decisions, including product costing and pricing, cost analysis, financial analysis, budgeting, and internal control.

0351. Business Law—Contracts, Agency. Cr. 4.

Prereq: sophomore standing. No credit after Accounting 0551. Introduction to the court system and laws of contracts and agency, bailments and sales.

0353. Business Law—Corporations, Partnerships. Cr. 4.

Prereq: sophomore standing. No credit after Accounting 0553. Legal responsibility of corporations and partnerships, bankruptcy, and negotiable papers.

0400. Internship in Accounting. Cr. 1-8.

Prereq: consent of internship committee. To provide the opportunity for selected students to put theory into practice on the job. Selected students will be assigned to cooperating business organizations for internship periods of one quarter.

0490. Directed Study in Accounting. Cr. 1-4 (Max. 8).

Prereq: 2.75 cumulative h.p.a. to be eligible; written approval on proposal form prior to registration; consent of chairman of department in which student is majoring. Four hours maximum in an academic quarter. Advanced readings and research or tutorial under the supervision of a faculty member in areas of special interest to student and faculty member.

0510. Advanced Accounting Theory I. Cr. 4.

Prereq: ACC 0312 or 0410. Asset valuation principles.

0511. Advanced Accounting Theory II. Cr. 4.

Prereq: ACC 0510. Interpretation of equities in corporation assets and measurement of income.

0512. Advanced Accounting Theory III. Cr. 4.

Prereq: ACC 0511. Analysis of financial situations and specialized statements including consolidated statements, statements of funds, and statements adjusted for price-level fluctuation.

0513. Accounting Information Systems. Cr. 4.

Prereq: ACC 0511 and CSC 0201. Principles of design of accounting systems and procedures to safeguard assets and assure a flow of accounting data, including a study of electronic data processing equipment in its relationship to the accounting system and other business data.

0514. Auditing. Cr. 4.

Prereq: ACC 0511, FBE 0540. Principles and procedures of auditing; professional standards and responsibilities of the certified public accountant.

0516. Cost Accounting. Cr. 4.

Prereq: ACC 0312 or 0410. Theory and practice of manufacturing cost accumulation, analysis, and control.

0517. Taxes on Income. Cr. 4.

Prereq: accounting majors, ACC 0312 or 0410; others, ACC 0311 or 0601. Theory of taxes on income and practical application of related laws and regulations.

0554. Real Estate Law. Cr. 4.

Laws governing ownership, lease and transfer of real property; security devices affecting real estate; wills and trusts.

0563. Computerized Accounting Systems. Cr. 4.

Prereq: ACC 0311 and CSC 0201. Integrating accounting systems with computers. Advanced programming concepts applicable to accounting procedures. Other topics include operating systems, hardware considerations, documentation and internal control.

0601. Financial Accounting. Cr. 4.

Not open to undergraduate business majors. No graduate credit in business administration without prior approval of Graduate Officer. Fundamental principles of financial accounting, dealing primarily with reporting the financial results of operation, financial position, and changes in financial position to investors, managers, and other interested parties.

0605. Business Law. Cr. 4.

Not open to undergraduate business majors. No graduate credit in business administration. No credit after Accounting 0351, 0353, 0551, or 0553. Intensive study of the American legal system with particular attention to historical background and the court system. Laws of contracts, agency, sales and negotiable papers, suretyship, bailments; business crimes and torts.

0612. Distribution Cost Accounting. Cr. 4.

Prereq: ACC 0311 or 0601. Principles of cost analysis and control applied to non-manufacturing costs.

0613. Accounting Under SEC and State Regulations. Cr. 4.

Prereq: ACC 0311 or 0601. A review of Securities & Exchange Commission and State securities rules and regulations currently affecting the accounting profession.

0615. Michigan Taxes. Cr. 4.

Prereq: ACC 0311 or 0601. Theory of Michigan state taxes; practical application of related laws and regulations.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

0617. Governmental and Not-for-Profit Accounting. Cr. 4.

Prereq: ACC 0311 or 0601. Accounting principles and procedures applied to fund accounting of government units and not-for-profit organizations.

Graduate Courses

0700. Managerial Accounting. Cr. 4.

Prereq: ACC 0601 or equiv. Not required for, and no credit for students concentrating in accounting without written approval of graduate adviser. Fundamental principles of managerial accounting, dealing primarily with the preparation and utilization of financial information for internal management purposes.

0711. Patonian Accounting Logic. Cr. 4.

Prereq: consent of chairman. Selected areas of advanced accounting theory involving unique applications of logic based on the writings of William A. Paton, Sr.

0712. Tax Problems in Business Affairs. Cr. 4.

Prereq: consent of adviser. Application of tax laws and regulations to the business affairs of corporations and individuals.

0713. Advanced Cost Accounting, Control and Analysis. Cr. 4.

Prereq: consent of adviser. Theoretical framework of cost accounting related to the decision-making and control processes of management. Probabilistic standard cost accounting. The learning curve model. Internal transfer-pricing models. Make or buy and lease or buy decision models.

0714. Advanced Tax Problems. Cr. 4.

Prereq: ACC 0517 or 0712 and consent of adviser. Problems and cases concerning such areas as gains and losses; corporate organizations, distributions, reorganizations, and liquidations; partnerships; and estate and gift taxes.

0715. Information Systems for Planning and Control. Cr. 4.

Prereq: consent of adviser. Readings and case studies concerning the information function within an organization. Internal control and the organization structure. Application of the systems approach to the development of total information systems.

0716. Current Accounting Issues. Cr. 4.

Prereq: consent of adviser. No credit after former Accounting 0702. Current accounting issues in the areas of financial and managerial accounting. Contemporary trends challenging accountants, investors, managers, and other interested parties.

0718. Auditing. Cr. 4.

Prereq: consent of adviser. Principles and procedures of internal and external auditing; statistical sampling and other advanced auditing techniques; professional standards and responsibilities of the auditor.

0719. Advanced Auditing. Cr. 4.

Prereq: ACC 0514 or 0718 and consent of adviser. No credit after former Accounting 0717. Reading and case studies which highlight new areas in the field of auditing and emphasize auditing standards and procedures. Attention to current auditing problem areas.

0751. Information Systems Design I. Cr. 4.

Prereq: CSC 0201 and consent of adviser. Logic and structure of computerized information systems. Systems flow charting and feasibility studies.

0752. Information Systems Design II. Cr. 4.

Prereq: ACC 0751 and consent of adviser. Development of operating systems. Advanced programming and theoretical concepts. Computer simulation of business systems. Stochastic modeling. Internal control within an on-line, real-time system.

0795. Research in Accounting. Cr. 1-4 (Max. 8).

Prereq: consent of adviser and graduate officer. Approved Petition and Authorization for Directed Study must be on file in Office of Graduate Student Services prior to registration. Advanced independent readings and research under the supervision of a member of the graduate faculty in areas of special interest to student and faculty member.

0796. Seminar in Managerial Accounting. Cr. 4.

Prereq: ACC 0516 or 0713 or consent of adviser. Selected topics in managerial accounting.

0797. Seminar in the Development of Accounting Thought. Cr. 4.

Prereq: consent of adviser. A critical analysis of the nature, sources, and validity of major accounting theories. The writings of leading scholars.

0798. Seminar in Contemporary Financial Accounting. Cr. 4.

Prereq: consent of adviser. Selected contemporary problems in accounting theory in the context of public reporting.

0799. Master's Essay Direction. Cr. 4.

Prereq: consent of adviser.

**0899. Master's Thesis Research and Direction. Cr. 2-12.
(12 required).**

Prereq: consent of adviser.

Business Administration (B A)

Undergraduate Courses

0450. Professional Practice in Business Administration. Cr. 1.

Offered for S and U grades only; must be elected by Professional Development Co-Operative Program students during work quarter. No credit toward degree. Provides the opportunity for students to put theory into practice on the job. Students will normally be assigned to cooperating business organizations for internship periods of one quarter.

0590. Social and Political Influences on Business. Cr. 4.

No credit after Management 0364 or 0590 or Marketing 0590. The corporation's relationship to the larger community. Roles and responsibilities of business and government; contemporary issues.

0690. Business Policy. Cr. 4.

No graduate credit. No credit after Management 0663 or 0690 or Marketing 0690. To be taken as one of last six courses toward bachelor's degree. Policy determination; integration across the functional areas of business.

Graduate Courses

0774. Business and Contemporary Society. Cr. 4.

No credit after Management 0774. Development, legitimacy and

governance of the corporation. Relation of the business firm to other institutions in society. Current issues are examined: jobs for minorities, pollution, the energy crisis, urban transportation, consumerism, and the multi-national corporation. The student is encouraged to examine her or his own priorities and values as they relate to various theories on the role of the corporation in modern society.

0790. Seminar in Business Policy. Cr. 4.

No credit after Management 0790 or 0797 or 0798 or Marketing 0790. To be taken in final sixteen hours of graduate program and after all core courses. Capstone course concerned with the integration of organized bodies of business administration knowledge and their application to the environment of decision makers.

Finance and Business Economics (FBE)

Undergraduate Courses

0405. Business Economics. Cr. 4.

Methods employed by firms in utilizing business information. Applications to price, production, and plant expansion decisions, and the formation of business policies.

0406. Current Business Conditions. Cr. 4.

Factors influencing current business conditions and the relation of these factors to the formulation of business policies. Methods of forecasting the level of business activity.

0490. Directed Study in Finance and Business Economics. Cr. 1-4 (Max. 8).

Prereq: 2.75 cumulative honor point average to be eligible; written approval on proposal form prior to registration; consent of chairman of department in which student is majoring. Four hours maximum in an academic quarter. Advanced readings and research or tutorial under the supervision of a faculty member in areas of special interest to student and faculty member.

0520. Risk Management. Cr. 4.

The underlying principles of insurance as they apply to the entire field of insurance. Intended for the student who wishes to get a general knowledge of insurance as a management tool in controlling risks.

0523. Financial Institutions. Cr. 4.

Financial framework of American business. The nature of financial institutions, focusing on their relationship to business, the financing of small and large businesses, and the financing of multinational corporate activities.

0524. Business and the Public Interest. Cr. 4.

The role of business in American capitalism, and the relationship of business to government, labor, consumers, investors, and other segments of society.

0529. Business Finance. Cr. 4.

Prereq: ECO 0102 and ACC 0311. Principles of financial administration, with applications to problems of financial analysis, control, and planning by firms under changing economic conditions.

0530. Quantitative Methods I: Probability and Statistical Inference. Cr. 4.

Prereq: one course in college mathematics. No credit after ECO 0520, STA 0102 or equiv. No business or free elective credit. Measures of central tendency and dispersion. Introduction to probability; normal, binominal, exponential, and Poisson distributions. Statistical inference and sampling methods.

0540. Quantitative Methods II: Statistical Methods. Cr. 4.

Prereq: FBE 0530, or ECO 0520, or equiv. Must be satisfactorily completed in first twenty-four credits after admission to the School of Business Administration. Uses of statistical methods in business. Topics include applications of sampling, index numbers, time-series, and regression methods to auditing and market research, production control, sales forecasting, and related areas.

0604. Financial Administration. Cr. 4.

Prereq: ACC 0601 or equiv. Not open to undergraduate business majors. No graduate credit in business administration. Methods of financial administration, including the management of funds, financial planning, and policies of financial institutions.

0608. Economic Environment and Business Behavior. Cr. 4.

Not open to undergraduate business majors. No graduate credit in business administration. Current economic conditions and their influences on business. Analyses and interpretations of government policies and practices.

0609. Quantitative Analysis: Theory and Application. Cr. 4.

Prereq: one course in college mathematics. Not open to undergraduate business majors. No graduate credit in business administration. Uses of statistical methods in business. Probability; frequency distributions; sampling; statistical inference; regression. Applications to auditing, marketing research, production control, sales forecasting, and related areas.

0621. The Stock Market and Investments. Cr. 4.

Introduction to the securities markets and how they function. Interpreting market changes; capital building through stock investments; factors influencing stock market prices; sources of investment information; strategies and theories of investing.

0622. Portfolio Management. Cr. 4.

Prereq: FBE 0621. Principles of portfolio construction and administration applicable to various institutions including banks, insurance companies, mutual funds, and pension trusts.

0627. Advanced Business Finance. Cr. 4.

Prereq: FBE 0529 and 0540. Working capital management, capital budgeting, valuation theories, and long term financing policies. Emphasis on the role of financial management in maximizing the value of the firm.

Graduate Courses

0701. Quantitative Methods Applied to Business Decisions. Cr. 4.

Prereq: completion of all foundation requirements. Not required for and no credit for students concentrating in operations management without written approval of graduate adviser. Selected applications of quantitative tools and techniques to business problems. Computer utilization.

0709. Money and Capital Markets. Cr. 4.

Prereq: FBE 0608 or equiv. and consent of adviser. Capital markets and nonbank financial intermediaries; the financial markets; the money market, and interest rates.

0721. Asset Management. Cr. 4.

Prereq: FBE 0604 or equiv. and consent of adviser. The scope and objective of asset management. Analysis of problems concerning the management and financing of working capital. Development of capital budgeting models under conditions of uncertainty.

0722. Long-Term Financing Policies. Cr. 4.

Prereq: FBE 0721 and consent of adviser. Analysis of problems of debt management, cost of capital, dividend policy, lease financing, and merger and re-organization. Critical analysis of various theories of valuation.

0723. Investment Policies. Cr. 4.

Prereq: FBE 0721 and consent of adviser. The key determinants of security prices under changing economic conditions. Strategies and techniques for selection, timing, and diversification; methods of portfolio construction and administration.

0748. (MKT 0748) Pricing Policies and Practices. Cr. 4.

Prereq: FBE 0782 or consent of adviser. Objectives, constraints and methods of pricing. Cost and demand concepts, legal and psychological considerations, competitive bidding, pricing of new and established products, legislation.

0755. Business Applications of Multivariate Methods. Cr. 4.

Prereq: FBE 0701 and consent of adviser. Practical techniques of applying multivariate analysis, design of experiments, regression and correlation methods to business problems.

0756. Managerial Forecasting Techniques. Cr. 4.

Prereq: FBE 0784 or equiv. and consent of adviser. Methods and techniques of business forecasting with emphasis on statistical tools and procedures. Applications to firms and industries. Sales, inventory, and financial forecasting.

0779. Mathematical Methods in Administration. Cr. 4.

Prereq: one year of calculus. Open to MBA students only; others with consent of instructor. Mathematical models of business behavior and management decision making. Applications to administrative and social problems in the private and public sectors.

0782. Managerial Economics and Finance. Cr. 4.

Not required for and no credit for students concentrating in managerial economics or finance without written approval of graduate adviser. Economic and financial aspects of corporate management. Business forecasting; production, inventory, and cost control; pricing practices and policies; capital budgeting and financial planning.

0783. Business Conditions Analysis. Cr. 4.

Prereq: consent of adviser. Methods of analyzing current economic conditions and their effects on business. Techniques of forecasting and the construction of general forecasting models.

0784. Statistical Methods for Business Decisions. Cr. 4.

Prereq: FBE 0701 and consent of adviser. Uses of statistics for business decision making. Statistical inference, estimation, sampling techniques, classical and Bayesian decision theory and methods applied to practical business problems.

0785. Seminar in Business Economics. Cr. 4.

Prereq: consent of adviser. Current topics in business economics as they relate to finance, marketing, administrative control, and other areas of business.

0787. International Business Finance. Cr. 4.

Prereq: consent of adviser. Financing problems of the international business firm. Sources of funds for international investment; financial services to exporters, importers and investors. Analysis of currency problems of foreign financial management, exchange controls, the functions of foreign money and capital markets.

0788. Problems in International Business. Cr. 4.

Prereq: consent of adviser. Topics of current interest in interna-

tional marketing; structure and control of multi-national companies and subsidiaries; tax, personnel and community aspects of international business operations and the problems of joint international business ventures; licensing agreements and the investment environment of foreign countries and regions.

0789. Seminar in International Business. Cr. 4.

Prereq: consent of adviser. Topics of current interest.

0795. Research in Finance and Business Economics. Cr.1-4 (Max. 8).

Prereq: consent of adviser and graduate officer. Approved *Petition and Authorization for Directed Study* must be on file in Office of Graduate Student Services prior to registration. Advanced independent readings and research under the supervision of a member of the graduate faculty in areas of special interest to student and faculty member.

0796. Seminar in Finance. Cr. 4.

Prereq: FBE 0722 or 0723 and consent of adviser. Selected topics of current interest in the field of finance.

0798. Seminar in Business Administration. Cr. 4.

Prereq: consent of graduate adviser.

0799. Master's Essay Direction. Cr. 4.

Prereq: consent of adviser.

0899. Master's Thesis Research and Direction. Cr. 2-12 (12 required).

Prereq: consent of adviser.

Management (MGT)

Undergraduate Courses

0160. The Dynamics of Business. Cr. 4.

No credit after Management 0559 or former 0360 or 0362, Marketing 0342 or 0530, Finance and Business Economics 0529. No credit after admission to the School of Business Administration. Introduction to the dynamics of contemporary business administration; historical development, internal division of activities (accounting, finance, marketing, production), and responses to pressures from internal and external environments.

0400. Internship in Management. Cr. 1-8.

Prereq: consent of internship committee. To provide the opportunity for selected students to put theory into practice on the job. Selected students will normally be assigned to cooperating business organizations for internship periods of one quarter.

0490. Directed Study in Management. Cr. 1-4 (Max. 8).

Prereq: 2.75 cumulative h.p.a. to be eligible; written approval on proposal form prior to registration; consent of chairman of department in which student is majoring. Four hours maximum in an academic quarter. Advanced readings and research or tutorial under the supervision of a faculty member in areas of special interest to student and faculty member.

0559. Introduction to Management. Cr. 4.

No graduate credit; no credit after Management 0362 or former 0360. Prereq: one course each in psychology and sociology. Intro-

duction to management theory and practice. The application of theory to typical management problems. The problems of effective supervision, managing groups and departments, designing an effective organization, and dealing with the external environment.

0560. Introduction to Production Management. Cr. 4.

Prereq: MGT 0559 or former 0360 or 0362. No graduate credit. Analysis of the production cycle. Development and application of models for cost control, planning and scheduling, resource allocation, quality control and information.

0561. Management Decision Making. Cr. 4.

Prereq: MGT 0461 or 0560, and FBE 0540 or consent of instructor. The development of model building skills and the utilization of quantitative models for managerial decisions.

0566. Small Business Management. Cr. 4.

Prereq: MGT 0559 or former 0360 or 0362, or consent of instructor. The special problems and practices relating to the organization and management of small retail service, wholesale, and manufacturing businesses.

0567. Small Business Management Problems. Cr. 4.

Prereq: MGT 0566 and consent of instructor. Field and library research into the operating problems of selected small businesses.

0568. Creating a Small Business. Cr. 4.

Prereq: MGT 0566, 0567. Specific problems related to organizing a small business; investigation into the feasibility of individually selected small businesses.

0569. Management of Non-Profit Organizations. Cr. 4.

Prereq: MGT 0559 or former 0360 or 0362. Special problems and practices relating to the management of non-profit organizations. Topics covered include planning, evaluation, tax-exempt status, fund-raising, public relations and organizational structure.

0570. Personnel Administration. Cr. 4.

Prereq: MGT 0559 or former 0360 or 0362. Theory, policies, procedures and practices in employment relationships. Research, problems and practices in job design, manpower planning, selection, training and development, performance measurement and wage administration. Compliance with current laws affecting employment.

0574. Collective Bargaining. Cr. 4.

Prereq: MGT 0559 or former 0360 or 0362, or consent of instructor. A basic course in labor relations examining the development of union-management relationships; the philosophy and practice of collective bargaining.

0575. Comparative Industrial Relations Systems. Cr. 4.

Prereq: MGT 0574 or equiv. or consent of instructor. Not open to M.B.A. students. Management-employee relationships in industrial countries. Examination of collective bargaining systems; use and level of the negotiation process; reliance upon dispute resolution procedures; extent of political vs. economic strategies.

0576. Office Administration. Cr. 4.

Prereq: MGT 0559 or former 0360 or 0362, or consent of instructor. Designing policies, procedures and practices for efficient administration of office services. Maintaining an effective office environment. Managing recorded information for decision making.

0577. Manpower Management. Cr. 4.

Prereq: MGT 0559 or former 0360 or 0362. Organizational manpower policy, planning and programming. The functioning of internal labor markets and management's response to such variables

as their own fluctuating manpower needs, changes in technology and labor market conditions, and to such issues as the employment of women, minorities, and the disadvantaged.

0606. The Process of Management. Cr. 4.

Not open to undergraduate business majors. No graduate credit in business administration. Study of management activities including planning, organizing, staffing, directing, and control. Examination of management theory, practice, and problems.

0607. Industrial Relations. Cr. 4.

Not open to undergraduate business majors or students who have taken undergraduate industrial relations courses. The legal, philosophical, and institutional environment of industrial relations, with insight into collective bargaining and other major aspects of industrial relations.

0608. Employee Relations in the Public Professions. Cr. 4.

Prereq: consent of instructor or adviser. Investigation of management-employee relations in public services, unionization and collective negotiations in the public professions.

0660. Nature of the Organization. Cr. 4.

Prereq: MGT 0559 or former 0360 or 0362, or consent of instructor. Study of line, staff, functional, and committee organizations. Examines top, middle, and first-level management positions. Among the concepts discussed are: authority, responsibility, accountability, departmentalization, decentralization, and organizational charting.

0661. Management Planning and Control Systems. Cr. 4.

Prereq: MGT 0559 or former 0360 or 0362. The theory, practice, and development of strategic planning and control systems.

0662. Behavior in Organizations. Cr. 4.

Prereq: MGT 0660 or consent of instructor. Dynamics of behavior in organizational settings, at the individual, interpersonal, group, and intergroup levels. A problem-solving approach to management at all levels with emphasis on interpersonal and group skills. Topics include: motivation, communication, leadership, roles, conflict, organizational change, environmental relationships, group functions and processes.

0667. Models in Operations Management. Cr. 4.

Prereq: MGT 0561 or consent of instructor. Application of quantitative models to production management. Decision models for input, process, and output control.

0674. Administering the Labor Agreement. Cr. 4.

Prereq: MGT 0574. Interpretation, application, and enforcement of labor agreements.

0678. Current Issues in Employee Relations. Cr. 4.

Prereq: sixteen credits in personnel and industrial relations. A terminal course investigating contemporary personnel, industrial relations, and manpower issues and problems.

0696. Seminar in Operations Management. Cr. 4.

Prereq: MGT 0560 or former 0461, and FBE 0530. Selected topics in production management. Computer applications in managing complex production systems.

Graduate Courses

0706. Management and the Organization. Cr. 4.

Not required for and no credit for students concentrating in man-

agement or industrial relations and personnel without written approval of graduate adviser. Contemporary administrative practice, research, and theory on: organization structure, assessing organizational effectiveness, organizational adaptation and change; managing group and interpersonal relations, communication, decision making, leadership process and styles, work motivation, performance and satisfaction.

0750. Introduction to Operations Management. Cr. 4.

Prereq: FBE 0609 or equiv. and consent of instructor. Application of basic modern management science techniques to a variety of production management problems; identification of production problems as they occur in industry and the development of solutions to those problems.

0751. Operations Management I. Cr. 4.

Prereq: differential and integral calculus; knowledge of computer language; and consent of adviser. Applications of mathematical programming to production situations. Linear and non-linear algorithms. Mixed integer, binary, stochastic, goal programming. Networks, PERT, CPM.

0753. Operations Management II. Cr. 4.

Prereq: differential and integral calculus; knowledge of computer language; FBE 0784 or equiv. and consent of adviser. Stochastic models in production management. State, probabilistic, inventory, simulation, and waiting line models.

0754. Seminar in Operations Management. Cr. 4.

Prereq: differential and integral calculus; knowledge of computer language; FBE 0784 or equiv.; consent of adviser.

0761. Human Behavior in Organizations. Cr. 4.

Prereq: MGT 0606 or equiv. and consent of adviser. The management of individual behavior in an organization; theories of group dynamics and individual motivation. Insight into the problems of effective leadership, problem-solving methods, and management of interpersonal and group relations. An experiential approach whereby the student applies theory in the classroom and relates his experiences to his own organizational life.

0762. Complex Organizations. Cr. 4.

Prereq: MGT 0606 or equiv. and consent of adviser. The formal structure of complex organizations, levels of management, authority and power, stratification, departmentation, decentralization, organizational design and evaluation. The problems of how organizations adapt to their environments, assessing the impact of technology on organizational structure, and designing effective information and decision making systems.

0763. Organizational Change and Development. Cr. 4.

Prereq: MGT 0606 or equiv. and consent of adviser. Theory, methods, and skills involved in producing planned changes in organizations toward increased effectiveness. Background exposure to the social and behavioral sciences is recommended. Class members plan and conduct individually planned change projects. Classes involve quizzes, discussions, lecture presentations, and behavioral skill development exercises.

0764. Management of Human Resources. Cr. 4.

Prereq: MGT 0606 or equiv. and consent of adviser. Concepts and models of manpower management. Problem solving methods. The problems of effective utilization of existing human resources. Organization's internal labor resources and the demands of changing labor markets.

0765. Development of Interpersonal Skills for Managers. Cr. 4.

Prereq: MGT 0606 or equiv. and consent of adviser. The develop-

ment of interpersonal skills needed for effective management. Insight into managerial behavior through direct experience of interpersonal and group behavior. Develop skills in: problem solving, leadership, communication, and conflict management.

0766. Entrepreneurial Management. Cr. 4.

Prereq: MGT 0606 or equiv. and consent of adviser. Creating, financing, marketing and management of the operations of the small business enterprise.

0768. Executive Decision Making. Cr. 4.

Prereq: MGT 0606 or equiv. and consent of adviser. Application of measurement techniques and analytic models to solve complex management problems involving both multiple objectives and uncertainty.

0769. Executive Development. Cr. 4.

Prereq: MGT 0606 or equiv. and consent of adviser. The nature and evolution of executive development. Objectives of development programs. Identification of executive skills. Design, implementation, and evaluation of development programs. Techniques of development and their relative merits.

0770. American Business Values. Cr. 4.

Prereq: BA 0774 or MGT 0774 and consent of adviser. Free enterprise and the Protestant Ethic; private property, competition, profit maximization, saving, and their influence on attitudes. Comparative socio-economic systems and their values, strengths, and limitations. Influence of social responsibility on classical business ideology as reflected in changing values and new policies and goals for the private sector.

0775. Labor Conflict and Conflict Resolution. Cr. 4.

Prereq: MGT 0607 or equiv. and consent of adviser. The causes of labor-management conflicts. Investigation of alternative means of conflict resolution including mediation, fact finding, and arbitration processes.

0777. Labor Relations and Social Problems. Cr. 4.

Prereq: MGT 0607 or equiv. and consent of adviser. Investigation of changing public policy in areas of manpower and labor relations, such as employment discrimination, EEOC/NLRB relationships, strikes and welfare benefits, O.S.H.A., and other federal and state legislation.

0795. Research in Management. Cr. 1-4 (Max. 8).

Prereq: consent of adviser and graduate officer. Approved *Petition and Authorization for Directed Study* must be on file in Office of Graduate Student Services prior to registration. Advanced independent readings and research under the supervision of a member of the graduate faculty in areas of special interest to student and faculty member.

0799. Master's Essay Direction. Cr. 4.

Prereq: consent of adviser.

0898. Seminar in Industrial Relations. Cr. 4.

Prereq: two graduate courses in industrial relations and consent of adviser. A terminal course in the graduate program in industrial relations. Major research problems and current issues in industrial relations.

**0899. Master's Thesis Research and Direction. Cr. 2-12
(12 required).**

Prereq: consent of adviser.

Marketing (MKT)

Undergraduate Courses

0400. Internship in Marketing. Cr. 1-8.

Prereq: consent of internship committee. To provide the opportunity for selected students to put theory into practice on the job. Selected students will be assigned to cooperating business organizations for internship periods of one quarter.

0490. Directed Study in Marketing. Cr. 1-4 (Max. 8).

Prereq: 2.75 cumulative h.p.a. to be eligible; written approval on proposal form prior to registration; consent of chairman of department in which student is majoring. Four hours maximum in an academic quarter. Advanced readings and research or tutorial under the supervision of a faculty member in areas of special interest to student and faculty member.

0530. Marketing Management. Cr. 4.

Prereq: ECO 0102. No graduate credit. No credit after former Marketing 0342. Planning the marketing program within social, economic and legal environments. Market segmentation and behavior, market systems and strategy.

0533. Business Reports and Presentations. Cr. 4.

Prereq: successful completion of English Proficiency Examination in Composition. No credit after former Marketing 0652. Principles of effective business communication. Preparation of reports and presentations: objectives, structures, techniques of persuasion, visual aids.

0535. Marketing Analysis and Decision Making. Cr. 4.

Prereq: MKT 0342 or 0530 and FBE 0540. No credit after former Marketing 0645. Application of marketing principles in the analysis of problems in the areas of market objectives, and product, price, promotion and distribution plans.

0545. Consumer Behavior. Cr. 4.

Prereq: MKT 0342 or 0530. Nature and dynamics of consumer behavior. Concepts and constructs employed to identify market segments and the significance of the behavior of these segments to marketing strategy.

0546. Physical Distribution. Cr. 4.

Prereq: MKT 0342 or 0530, and FBE 0540. Achieving efficient physical flow of goods to fulfill marketing objectives. Methods of transportation, selection of carriers, spatial arrangements of markets, location of plants and warehouses, inventory systems, and channels for the physical movement of goods.

0547. Industrial Marketing. Cr. 4.

Prereq: MKT 0342 or 0530 or consent of instructor. The industrial buying process, value and vendor analysis, market analysis, industrial channels and media; problems of leasing, financing, reciprocity and technical service.

0548. Market Forecasting. Cr. 4.

Prereq: MKT 0342 or 0530 and FBE 0540. An analysis of the nature and methods of forecasting market activity. The application of forecasting to actual marketing problems. The uses of forecasting in budgeting, sales, prices, inventories and consumer demand. Emphasis on the management viewpoint in planning for profit.

0549. Principles of Advertising. Cr. 4.

Prereq: MKT 0342 or 0530. Advertising problems of manufacturer and retailer; research, advertising copy, layout, illustration, printing; lithography and engraving; media of advertising; advertising management of departments and agencies; campaign strategy; appropriations.

0570. Retail Management. Cr. 4.

Prereq: MKT 0342 or 0530. Retailing concepts and problems. Competitive structure, store location, organization, buying, inventory control, sales promotion, pricing, credit policy, customer services, research and franchising.

0581. Channels of Distribution. Cr. 4.

Prereq: MKT 0342 or 0530. Study of the nature and importance of channels of distribution from theoretical and operational viewpoints. Distribution of consumer and industrial goods with particular reference to retailing and wholesaling.

0585. Promotion Strategy. Cr. 4.

Prereq: MKT 0342 or 0530. Development of integrated strategies, plans and programs in advertising, personal selling, publicity and promotion, and their implementation in the overall marketing effort.

0603. Marketing Principles and Policies. Cr. 4.

No graduate credit in business administration. Not open to undergraduate business majors. Marketing principles and policies related to consumers, channels of distribution, merchandising, advertising, personal selling and sales promotion, pricing, and marketing research.

0641. Market Research and Analysis. Cr. 4.

Prereq: MKT 0342 or 0530 and FBE 0540. Methods of gathering and analyzing data which will facilitate the identification and solution of marketing problems. Planning the project, data sources, questionnaire construction, and sample design.

0642. Advertising Copy. Cr. 4.

Prereq: MKT 0549 and eight credits in English composition and literature or consent of instructor. Principles of effective advertising copy and application in consumer and industrial advertisements. Exercises in writing, criticizing, testing and revising magazine, newspaper, radio, television, outdoor, and direct mail advertisements.

0643. Advertising Media Planning. Cr. 4.

Prereq: MKT 0342 or 0530; MKT 0549; or consent of instructor. Influence of marketing, creative and media objectives upon media planning. Information systems, budgeting approaches, media characteristics, media models, schedule construction, execution, and auditing.

0644. Sales Management. Cr. 4.

Prereq: MKT 0342 or 0530. Organization and direction of a sales organization including selection, training, compensation, supervision, motivation, budgets, quotas, territories, and sales analysis.

0646. Public Relations of Business. Cr. 4.

Philosophy of public relations of business, history of public relations, study of public opinion, the public relations process, tools of communication, uses of mass media in public relations work, and analyses of methods employed in establishing sound public relations programs.

0648. Purchasing Management. Cr. 4.

Prereq: MKT 0342 or 0530. Organization and procedure. Order

systems, value analysis, budgets, price and cost analysis, selection of sources, competitive bids, negotiation, types of contract, follow-up, inspection and measurement of purchasing performance.

0650. International Marketing Management. Cr. 4.

Prereq: MKT 0342 or 0530. Exporting and importing, foreign licensing and patenting, and direct foreign investment; comparative marketing systems, differences in culture, and political and legal environment.

Graduate Courses

0703. Marketing Strategy. Cr. 4.

No credit after Marketing 0741. Not required for and no credit for students concentrating in marketing without written approval of graduate adviser. Principles and concepts of marketing management. Analysis of the marketing environment, problems and opportunities. Development of objectives, plans and strategies for the marketing function.

0740. Marketing Problems. Cr. 4.

No credit after Marketing 0704. Prereq: MKT 0603 or equiv. and consent of adviser. Application of marketing principles and policies to case studies of individual firms.

0742. Sales Management Problems. Cr. 4.

Prereq: MKT 0603 or equiv. and consent of adviser. Sales management operations, procedures and policies. Emphasis on the areas in which the sales executive must make policy decisions such as price administration, product planning, organization and management of sales personnel, and marketing planning.

0743. Advertising Management. Cr. 4.

Prereq: MKT 0603 or equiv. and consent of adviser. Planning, implementing and controlling advertising and sales promotion. Internal and external relationships of the advertising department, determining advertising objectives and copy platform, setting the budget, selecting media and measuring advertising effectiveness.

0745. Marketing Research and Methodology. Cr. 4.

Prereq: MKT 0603 or equiv., FBE 0701 and consent of adviser. Management's use and application of modern research in marketing decision making. Important research concepts and research techniques as management tools are stressed, as are areas in which marketing research is most helpful to management.

0747. Theory in Marketing. Cr. 4.

Prereq: MKT 0603 or equiv. and consent of adviser. Marketing theory from an interdisciplinary point of view. Relevant theories are drawn from such areas as economics, sociology, psychology, and political science in order to develop concepts useful for orientation to and practice of the comprehensive field of marketing.

0748. Pricing Policies and Practices (FBE 0748). Cr. 4.

Prereq: FBE 0782 or consent of adviser. Objectives, constraints and methods of pricing. Cost and demand concepts, legal and psychological considerations, competitive bidding, pricing of new and established products, legislation.

0795. Research in Marketing. Cr. 1-4 (Max. 8).

Prereq: consent of adviser and graduate officer. Approved Petition and Authorization For Directed Study must be on file in Office

of Graduate Student Services prior to registration. Advanced independent readings and research under the supervision of a member of the graduate faculty in areas of special interest to student and faculty member.

0797. Seminar in Marketing. Cr. 4.

Prereq: FBE 0701 and MKT 0603 or equiv. and consent of adviser. In-depth exploration of new and important subjects or techniques in marketing. Topics vary by quarter; consult adviser.

0799. Master's Essay Direction. Cr. 4.

Prereq: consent of adviser.

**0899. Master's Thesis Research and Direction. Cr. 2-12
(12 required).**

Prereq: consent of adviser.

FACULTY

Dean: Victor C. Doherty

PROFESSORS

Gerald Alvin, Bruce E. DeSpelder, Victor C. Doherty, Edwin J. Forsythe, Louis Hough, Raymond J. Murphy, Aubrey C. Roberts, Milton H. Spencer.

ASSOCIATE PROFESSORS

Charles R. Allberry, Robert C. Bushnell, Gerald F. Cavanagh, Walter J. Chamberlin, James O. Flynn, Donald E. Gorton, Arthur M. Hoffeins, Mary S. Irwin, Leon R. Klein, John G. Maurer, James R. McGuigan, Harvey Nussbaum, Irving Paster, Edward S. Pearsall, John J. Rath, Marshall Sashkin, Alyce C. Schnoor, John E. Sheridan, Louis L. Stern, Fred P. Unruh, Harish L. Verma, Frank L. Voorheis, James F. Wallis.

ASSISTANT PROFESSORS

Richard G. Becherer, Francis J. Brown, Harry Cagle, Sergio T. Goquiolay, Charles W. Gross, Alice V. Wolfram Herge, Ronald E. Hutchins, Douglass V. Koch, Gene A. Leeb, James T. Low, James E. Martin, Barbara S. Price, Maury R. Randall, Joseph R. Razek, Lawrence M. Richard, Edward A. Riordan, Jack D. Schroeder, Bernard A. Shinkel, Gary F. Soldow, Myles S. Stern, Flumo Y. Stevens, Frank M. Vandervegt, Donald J. Vredenburgh, Paul R. Wheaton, James B. Wiley, Patrick T. Wirtz, Philip J. Wydick, Robert J. Zolad.

Undergraduate Admissions and Information	
Room 103 Prentis Building	577-4505
Undergraduate Academic Adviser	
Room 103 Prentis Building	577-4505
Graduate Admissions and Information	
Room 105M Prentis Building	577-4510
Placement.....	Room 226 Prentis Building 577-4500
Bureau of Business Research	
Room 226 Prentis Building	577-4500
Research Assistant.....	Room 6 Prentis Building 577-4546

Mailing address for all offices:

School of Business Administration
Wayne State University
5201 Cass Avenue
Detroit, Michigan 48202

School of Business Administration Directory

Dean	Room 226 Prentis Building	577-4503
Assistant Dean for Academic Programs		
Room 226 Prentis Building		577-4501
Assistant Dean for Fiscal Affairs		
Room 216 Prentis Building		577-4502
Director of Professional Programs and Services		
Room 226 Prentis Building		577-4500
Director of Student Services		
Room 105M Prentis Building		577-4510
Assistant to the Director of Professional Programs and Services.....	Room 103 Prentis Building	577-4505
Department of Accounting		
Room 300 Prentis Building		577-4530
Department of Finance and Business Economics		
Room 328 Prentis Building		577-4520
Department of Management		
Room 328 Prentis Building		577-4515
Department of Marketing		
Room 300 Prentis Building		577-4525

College of Education

DEAN: J. EDWARD SIMPKINS



Foreword

The College of Education of Wayne State University serves the needs of one of the world's largest metropolitan areas. The complex and ever-changing nature of urban society provides the setting in which this teacher preparation institution exists; therefore, the College reflects the dynamic character of urban life and must necessarily be concerned with a great number of urban problems.

Over the decades we have placed great faith in education as the means by which the human condition can be improved. As society has been altered by such factors as the knowledge explosion, technological advances, and population growth, the purposes and processes of education have changed.

The professional education of teachers is the central concern of the College of Education. The College strives to prepare teachers who have the commitment and competence to enable children and youth to achieve dignity, preserve individuality, develop democratic values, and find self-fulfillment.

Students of teaching have numerous opportunities to participate in the study, research, and analysis of contemporary education problems. A variety of professional education resources is available to students within the University and in the community. Professional laboratory experiences are an important dimension of the program as they bring the prospective teacher face to face with the realities of the classroom, the school and the community.

Assisting the College of Education in its task of preparing teachers are other colleges, schools and divisions within the University, and approximately fifty school districts which provide the settings for a great variety of laboratory experiences at the undergraduate and graduate levels.

To those entering the profession the challenge is great. New technologies of instruction are evolving rapidly and offer the prospective teacher many opportunities for developing a high level of teaching competence. Problems generated in our urban society are extremely complex and those related to education are no exception. Yet the opportunities for curriculum innovation, experimentation, and leadership have never been greater.

ACCREDITATION

The programs of the College of Education have been accredited by the National Council for Accreditation of Teacher Education since 1929. The College has been reaccredited periodically since that time. Full accreditation for its programs was again granted in 1974 for a ten-year period. In addition, Wayne State University is accredited by the North Central Association of Colleges and Secondary Schools.

UNDERGRADUATE PROGRAMS

ADMISSION REQUIREMENTS for Undergraduates

FRESHMEN AND SOPHOMORES

entering with less than two years of college work

All students who enter the University directly from high school, or transfer to Wayne from other colleges with less than eighty quarter hours of credit, are admitted by the University Admissions Office into the College of Liberal Arts where they pursue a pre-teaching curriculum.

Students intending to prepare for teaching in the fields of art education or physical education with less than eighty quarter hours of credit are admitted directly to the College of Education at the junior college level. Admission for each of these groups is through the University Office of Admissions, 116 Administrative Services Building, 5950 Cass, Detroit, Michigan 48202, telephone 577-3560.

For information regarding application procedures, admission requirements, and fees please refer to the General Information section of this bulletin, page 9.

SENIOR COLLEGE AND POST-DEGREE STUDENTS

entering with two or more years of college credit

Upon completion of two years of college course work (a minimum of eighty quarter credits) at an accredited institution, students who intend to teach apply to the College of Education for admission to senior college professional work. Applicants who have completed two full years or more of college work in some institution other than Wayne must file transcripts of such work in the College of Education Division of Academic Services — not in the University Office of Admissions. Students who intend to receive degrees from other colleges in the University and a teaching certificate from the College of Education must be admitted to the Combined Program through the College of Education Division of Academic Services, 489 Education Building. An application fee of \$15.00 is charged to students new to the University who seek admission at the senior college or post-degree levels.

ADMISSION CRITERIA

The standards listed below apply to those students entering the College of Education for the first time with junior year or higher standing, those working for a secondary school teaching certificate although officially enrolled in other colleges, and those previously admitted to the junior college division of the College of Education in the fields of art education and physical education.

Eligibility for admission to senior college professional work is based on the following criteria:

1. **Personal Attributes Most Desirable for Teachers** — including a high standard of moral conduct and an understanding of the nature of responsible citizenship.

2. **Physical and Emotional Health** — Definite standards of health, including sight, hearing, speech, personal hygiene, general vitality, and emotional stability, must be met by all students entering the senior level of the College. All students entering the College of Education are required to complete a health examination including a T.B. test prior to beginning work in the College.

Students with recognizable speech defects that may prove unacceptable for participation as a classroom instructor should seek diagnosis and early remedy at the Speech Clinic, 585 Manoogian, before applying to the senior College of Education. As a matter of routine, students at the junior college level anticipating teacher education work are strongly urged to avail themselves of the diagnostic services of the Speech Clinic prior to applying to the senior college level. Students whose speech is judged unacceptable for classroom participation during their senior college years will be referred to the Speech Clinic for testing and remediation. Satisfactory verbal communication is a prerequisite for teacher certification.

3. **Satisfactory Completion of Two Years of College Work** — A minimum of fifty-three semester or eighty quarter credits of work must be completed with an honor point average of 2.0 or above. This work should generally conform to the two years of preprofessional work prescribed by the College for students who expect to prepare for teaching. The quality of work, especially in the major area, must indicate a strong potential for success in a teacher-education program. The honor point average used in considering admissibility to the College is calculated as a gross total representing all institutions attended and all courses attempted.

4. **Writing Competency Examination** — All Education students must satisfactorily complete the Writing Competency Examination.

5. **Specific Prerequisites** or other special requirements of the curriculum area for which the student is applying.

EARLY APPLICATION

Since admission procedures take considerable time, all applicants, whether of junior, senior, or post-degree standing, are urged to present their formal applications for admission to teacher-education work as early as possible, and in all cases, at least *six weeks* before the beginning of any quarter. Application forms are available in the office of the Division of Academic Services, 489 Education Building.

Applicants to the VAE teacher preparation programs are accepted *only for the Spring quarter with a March 1st deadline for submission of applications.*

UNDERGRADUATE DEGREES

The College of Education grants the following undergraduate degrees:

BACHELOR OF SCIENCE IN EDUCATION

This degree is granted upon the successful completion of any of the four-year curricula described later in this bulletin. A minimum of 186 credits of work must be completed with scholarship standing of C or better. The student must meet all course requirements of his curriculum, including prerequisites and remedial courses if stipulated. The course elections should be distributed to give the student a minimum of sixty credits in general education, three credits in physical education, three credits in hygiene, a minimum of thirty credits in professional education, and a concentration in areas designated as majors or minors.

BACHELOR OF ARTS IN EDUCATION

The requirements for this degree are similar to those for the Bachelor of Science degree, with the exception that the student's work must include sixteen credits in a foreign language. If two or more units of a foreign language are offered for admission, this requirement may be satisfied by completing twelve college credits in the same language beyond the freshman level.

BACHELOR OF SCIENCE IN RECREATION AND PARK SERVICES

This degree is granted only upon successful completion of the Recreation and Park Services program. This is *not* a teaching certification program.

See the Division of Health and Physical Education section of this bulletin (page 189) for specific requirements and consult with appropriate advisers of that Division.

TRANSFERRED CREDITS and RESIDENCE REQUIREMENTS

College credits earned in accredited institutions other than Wayne may be transferred by an undergraduate to apply toward meeting requirements for degrees and teaching certificates in the College, provided (1) the student has been accepted as a matriculated student in the College, (2) the grades received in courses where transfer is desired have been satisfactory, and (3) credits so earned will apply to the student's curriculum.

The degree requirement of two semesters or three quarter credits in physical education may be waived for students transferring to the College with two or more years of credit.¹ If such transfer students were required to take physical education but without credit, they may be allowed up to three credits toward graduation from the College.

¹ This may also be waived under certain conditions for in-service teachers, veterans, and AFROTC registrants as well as for age and physical disabilities.

In general, a maximum of twenty-three credits may be earned by correspondence and extension courses and applied toward an undergraduate degree.

An applicant for a degree from the College must complete at least forty-five credits as a registered student in the College.

During the senior year not more than fifteen transferred credits may be accepted. The student must be in residence during the quarter in which he completes requirements for graduation.

When the student has a degree from an accredited institution and is meeting the requirements of the College for a Michigan Provisional Teacher's Certificate, some credits toward the certificate may be accepted by transfer but at least twenty-three credits must be completed at Wayne.²

² When a student already holds one type of certificate and is working on another, this residence requirement may be lowered.



CHOICE OF CURRICULUM

Before selecting his curriculum, the student should obtain the best information available to him concerning the requirements for success in the different teaching fields and the possibilities of placement. He should, of course, also consider his own interest and inclinations. In the preparation for a considerable number of teaching fields, the actual choice may be deferred until as late as the beginning of the junior year. In other fields, however, it is necessary to begin specialized work in the freshman year. The selection of a curriculum and the election of courses from quarter to quarter are made in relation to the student's professional objective in consultation with an adviser.

Curriculum Areas

DIVISION OF HEALTH AND PHYSICAL EDUCATION¹

- Health Education
- Physical Education
- Recreation and Park Services²

DIVISION OF LIBRARY SCIENCE³

DIVISION OF TEACHER EDUCATION

ART EDUCATION

INTERDISCIPLINARY TEACHER EDUCATION

- Elementary Education (Early Childhood and K-9)
- English Education (Secondary)
- Foreign Language Education (Secondary)
- Mathematics Education (Secondary)
- Science Education (Elementary and Secondary)
- Social Studies Education (Secondary)
- Speech Education (Secondary)

SPECIAL EDUCATION

VOCATIONAL AND APPLIED ARTS EDUCATION

- Business Education
- Distributive Education
- Family Life Education
- Industrial Education

Combined programs are available in the following curriculum areas in which students complete degree requirements in the College of Liberal Arts and the teaching certificate requirements in the College of Education:

COLLEGE OF LIBERAL ARTS

- English Education (Secondary)
- Foreign Language Education (Secondary)
- Mathematics Education (Secondary)
- Music Education
- Science Education (Secondary)
- Social Studies Education (Secondary)
- Speech Education (Secondary)

¹ Bachelor degree programs offered in the Division of Health and Physical Education are granted through the College of Education. For these degree programs, refer to the Division of Health and Physical Education section of this bulletin, page 185.

² This is a degree program only and does not lead to teacher certification.

³ Refer to page 79 for curriculum information regarding school library preparation at the undergraduate level.

GRADUATE PROGRAMS

For complete information regarding graduate rules and regulations, students should consult the Graduate Division section of this bulletin, beginning on page 19. The following additions and amendments pertain to the College of Education.

GRADUATE DEGREES

MASTER OF ARTS IN TEACHING

The Master of Arts in Teaching degree program is administered by the Teacher Education Division and is designed to provide professional preparation for holders of baccalaureate degrees with suitable teaching majors and minors who seek teacher certification as well as a master's degree. Applicants to M.A.T. programs must be admissible to the Graduate Division and acceptable to the College of Education Division of Teacher Education. All credit applied toward the M.A.T. degree is at the graduate level including the professional education experiences leading to certification. The following M.A.T. programs are presently offered:

- Elementary Education
- English Education (Secondary)
- Mathematics Education (Junior High)
- Mathematics Education (Secondary)
- Science Education (Elementary and Secondary)
- Social Studies Education (Secondary)
- Vocational and Applied Arts Education
 - Business Education
 - Distributive Education
 - Family Life Education
 - Industrial Education

Credit Requirements for the various M.A.T. programs range from a minimum of sixty to a maximum of seventy-six credits, depending upon the applicant's background in his teaching field at the bachelor's level and specialized requirements. A professional field experience (student teaching or internship) is an integral part of the M.A.T. programs. Further details regarding M.A.T. programs are available in the College of Education Division of Teacher Education and Room 489 Education Building.

MASTER OF ARTS

For majors in school and community psychology, educational guidance and counseling, recreation and park services, or vocational rehabilitation, consult advisers in those areas.

MASTER OF EDUCATION

Prerequisite — In general, eligibility for a state provisional certificate is essential for admission. Additional prerequisites include a satisfactory background in the area of specialization and the completion of the general undergraduate academic requirements.

Admission — In addition to the completion and filing of an *Application for Graduate Admission* with Graduate Admissions, 102 Administrative Services Building, a personal interview in the chosen area of specialization may be required.

Areas of Concentration

DIVISION OF EDUCATIONAL LEADERSHIP

Educational Leadership
Instructional Technology

DIVISION OF HEALTH AND PHYSICAL EDUCATION¹

Health Education
Physical Education

DIVISION OF TEACHER EDUCATION

Art Education
Business Education
Distributive Education
Elementary Education
Elementary Reading
English Education (Secondary)
Family Life Education
Foreign Language Education
Industrial Education
Mathematics Education (Secondary)
Preschool and Parent Education
Science Education (Elementary and Secondary)
Secondary School Reading
Social Studies Education (Secondary)
Special Education
Vocational and Applied Arts Education

DIVISION OF THEORETICAL AND BEHAVIORAL FOUNDATIONS

Evaluation and Research
Educational Guidance and Counseling
History and Philosophy of Education
Educational Psychology
Educational Sociology

General Requirements

A minimum of forty-five credits is required for this degree under Plans A, B, or C:

Plan A — thirty-three credits of course work plus twelve credits for the terminal seminar and thesis.

Plan B — forty-one credits of course work plus four credits for the terminal seminar and essay.

Plan C — forty-one credits of course work plus four credits for the terminal seminar and project.

Specialization Sequence (major) — a minimum of twelve credits in the specialization as determined by the area, in addition to the terminal seminar and thesis, essay, or project is required.

¹ Master's degrees with areas of concentration in the Division of Health and Physical Education are granted through the College of Education. For specific information, see the Division of Physical and Health Education section of this bulletin (page 185) and consult with an adviser in that Division.

General Professional Sequence — at least nine credits are required in educational foundation (core) courses. The student must complete one course from each of three areas chosen from those listed below. Courses within a student's area of specialization cannot be used to satisfy this requirement.

Educational Leadership	ELD 7801
Educational Psychology	One of the following: TBF 5741, 5745, 5748, 6731, 6735, 7733, 7735, or 7738
Educational Sociology	TBF 7621 or 7623
Evaluation and Research	TBF 7661
Educational Guidance and Counseling	TBF 7701
History and Philosophy of Education	One of the following: TBF 7601, 7603, 7608, 8601, 8605, or 8607

Cognate — A minimum of eight credits is required in course work outside the specialization and core sequences. The purpose of cognate courses is to provide breadth to the student's master's program.

Plan of Work — After consultation with his adviser, the master's applicant prepares an outline of his program, setting forth the courses completed and to be elected that will satisfy course requirements for the degree.

Candidacy — This advanced status is normally established upon completion of twelve credits by the master's applicant toward degree requirements by filing an approved *Plan of Work* with the College's graduate officer, 489 Education Building. The plan *must* be filed during the quarter in which the applicant completes sixteen graduate credits toward the degree. Failure to file a plan of work will preclude further registration.

In addition to the above general requirements, other requirements may be specified by individual graduate areas listed above. The student should consult the program and requirements of the area in which he plans to specialize.

MASTER OF SCIENCE IN LIBRARY SCIENCE

For specific requirements for this degree, see page 78.

REVALIDATION OF CREDIT

Upon recommendation of the adviser and approval of the graduate officer, a student may revalidate over-age credits which are between six and ten years old and that represent courses completed at Wayne State University with grades of B or better. *Students are not permitted to revalidate credits earned at other institutions.* The adviser and student must set a terminal date for completion of all degree requirements including such additional requirements as may be indicated by the graduate officer to revalidate the over-age credits.

EDUCATION SPECIALIST PROGRAM

The Education Specialist certificate program is a forty-five credit program beyond the master's degree. It is a self-contained program, separate from other existing programs, with a distinct form of recognition at its completion. This is a planned program, not merely recognition for forty-five credits of graduate study beyond the master's degree.

Areas of Concentration

DIVISION OF EDUCATIONAL LEADERSHIP

- Elementary Administration and Supervision
- Elementary Education Curriculum and Instruction
- General Administration and Supervision
- General Secondary Education
- Instructional Technology
- Secondary Administration and Supervision
- Special Education (Administration)

DIVISION OF TEACHER EDUCATION

- Elementary Education
- English Education (Secondary)
- Mathematics Education
- Reading
- Science Education
- Secondary Education
- Social Studies Education
- Special Education
- Vocational and Applied Arts Education

DIVISION OF THEORETICAL AND BEHAVIORAL FOUNDATIONS

- Educational Sociology
- Guidance and Counseling
- School and Community Psychology
- Vocational Rehabilitation

Purpose

The purpose of this program is to strengthen the liberal education of teachers and administrators and to make professional workers more effective in their jobs. Its specific content is dependent upon the individual student's needs and interests. The program may include work in:

1. The specialized professional area.
2. The general professional area — the foundations of professional education.
3. The interdepartmental liberal education area.

Program Content and General Requirements

1. All *Plans of Work* are tailor-made to the professional needs of the students.
2. The *Plan of Work* is developed by the student with the help of his adviser.
3. A *Plan of Work* for each student must be approved by the adviser and filed with the Graduate Officer, 489 Educa-

tion Building, before nine credits have been accumulated following acceptance into the program. A certificate applicant cannot register in additional courses until an approved *Plan of Work* has been submitted and accepted.

4. Research studies, projects, or field studies may be accepted in partial fulfillment of requirements. Such projects will be in the nature of culminating experiences as terminal requirements.
5. Final evaluation requirements will be determined by the area of concentration or by the adviser.

Credit Requirements

1. Requirements for the Education Specialist certificate must be completed within six years after admission into the program.
2. A maximum of fifteen quarter credits of graduate post-master's degree work earned at another accredited university, or at Wayne State University, *prior to admission* to the Education Specialist program may be transferred provided the courses are approved by the adviser as appropriate to the program plan.
3. Credit earned beyond the master's degree which is over six years old *at the time of admission* may not be applied toward meeting requirements of the certificate. Credit earned after acceptance as a certificate applicant may not be over six years old at the time the certificate is granted.
4. A maximum of nine quarter credits of graduate post-master's degree work earned at another accredited university *after admission* to the Education Specialist program may be transferred and applied to the program provided no prior transfer credit from another university has been included in the program.

Admission Requirements and Procedures

1. Minimum entrance requirements are:
 - A. A master's degree from an accredited institution.
 - B. Applicants must present an honor point average of 2.6 or above for upper division undergraduate work. Applicants with an undergraduate honor point average below 2.6 must have an honor point average of 3.4 or above on their master's degree work.
 - C. Fulfillment of the special requirements of the area of concentration in which the student wishes to work.
 - D. Some fields of specialization require a minimum of three years of teaching experience or equivalent.
2. Students who have not been previously admitted to the Graduate Division file the *Application for Graduate Admission* with the University Admissions Office, 102 Administrative Services Building. If the minimum entrance requirements are met, students are given the rank of post-master's for one quarter only to enable them to register for course

work pending completion of other College or departmental requirements for admission to the Education Specialist program.

Students who hold master's degrees from Wayne State University file applications in 489 Education Building. An application fee is not required from these students.

3. Forms and directions regarding fulfillment of the other College and/or departmental requirements will be forwarded to the student on receipt of the application by the Graduate Education Office. When these requirements have been satisfied, the applicant will be invited to meet with a committee from his chosen area of concentration. Following the interview, the student will be notified of the admission decision by the Graduate Education Office.

Certificate of Recognition

Education Specialist certificates are awarded upon successful completion of all program requirements. Application for the certificate must be made not later than the last day of registration for the quarter in which the requirements are to be completed.

DOCTOR OF EDUCATION

The doctoral programs of the College of Education at Wayne State are designed to afford opportunity for advanced study and research to persons who have demonstrated: (1) superior scholarship; (2) leadership in education; (3) promise in the field of research; and (4) potential for professional leadership.

Advanced graduate degrees are conferred not merely upon the completion of a prescribed number of courses, nor necessarily after a given period of residence; but rather in recognition of outstanding ability and high attainment in course work, examinations, research, scholarly writing, and personal fitness for education as a profession.

Minimum Entrance Requirements

1. Undergraduate honor point average of 3.0. Applicants with honor point averages of less than 3.0 for the baccalaureate must present an honor point average of 3.5 or above in their master's degree work before being considered for acceptance as doctoral applicants.
2. A master's degree from an accredited graduate school.
3. Some fields of concentration require a minimum of three years teaching experience or equivalent.

Admission Procedures

Application — Students who have not been formally admitted to the Graduate Division file initial applications, with the \$15.00 application fee, with the University Admissions Office in the Administrative Services Building. If the minimum entrance requirements are met, students are given the rank of post-master's for one quarter only to enable them to register

for course work pending completion of specific admission requirements noted below.

Students who hold master's degrees from Wayne State University file doctoral applications in 489 Education Building. An application fee is not required from these students.

Applicants should meet with a counselor in Room 489 Education Building before filing a doctoral application.

Official transcripts of all college-level work, undergraduate and graduate, are to be mailed to the appropriate University office by the institution where the work was completed.

Forms and directions detailing prescribed college admission requirements including required Graduate Record Examination information, the College and Departmental writing tests, and personal interview information, will be forwarded by the Graduate Education office, 489 Education Building, upon receipt of doctoral applications.

When all transcripts, test results, recommendations, and other credentials, including the autobiographical statement, have been received and satisfy the prerequisites, the applicant will be invited to meet with a committee from his chosen area of concentration. Following the interview, the student will be notified of the admission decision by the graduate officer.

Areas of Concentration

DIVISION OF EDUCATIONAL LEADERSHIP

- Curriculum Development
 - Elementary Curriculum and Instruction
 - Leadership in Curriculum
 - Secondary Curriculum and Instruction
- Elementary School Administration and Supervision
- General Educational Administration and Supervision
- Higher Education
- Instructional Technology
- Secondary School Administration and Supervision
- Special Education (Administration)

DIVISION OF TEACHER EDUCATION

- Curriculum Development
 - Science Education (Elementary and Secondary)
 - Secondary English Education
 - Secondary Foreign Language Education
 - Mathematics Education
 - Secondary Social Studies Education
- Teacher Education
 - Elementary Education
 - Special Education
- Vocational and Applied Arts Education

DIVISION OF THEORETICAL AND BEHAVIORAL FOUNDATIONS

- Educational Psychology
- Educational Sociology¹
- Evaluation and Research
- Educational Guidance and Counseling
- History and Philosophy of Education

¹ Applications are not being accepted at the present time.

COLLEGE TEACHING IN DIVISIONAL AREAS OF GENERAL EDUCATION¹

Humanities

Science

Social Science

Selection of Adviser and Advisory Committee

During the first term of enrollment the student may be advised by the Graduate Officer. The student is expected to make arrangements for an adviser in time for planning his work for subsequent terms. In the case of a full-time student, arrangements are usually made for the selection of a regular adviser before the time of first enrollment.

The adviser acts as the chairman of the student's doctoral committee, which shall consist of a minimum of four members; specifically, the adviser, one member representing the area of the education minor, one member from the College of Education graduate faculty, and one member representing the field(s) outside the College of Education. The committee must be fully constituted not later than the time the student begins active work on his dissertation research or project, or is ready to take his final qualifying examination, whichever comes first. The main function of the doctoral committee is to advise the student in his research activities and to administer all final examinations.

General Requirements

Minimum Credit Requirements—The minimum credit requirement for the Ed.D. degree is 150 credits in graduate work beyond the baccalaureate degree.

Residence—At least one full year of course work, i.e., forty-five credits of course work beyond the master's degree, must be taken in residence at Wayne State University. This may include work in research techniques, unless taken by examination, but *does not include dissertation research credit*.

Twenty-seven credits in graduate course work, exclusive of directed study and dissertation research, must be completed within one calendar year to meet program residence requirements. This minimum may be exceeded in fields of concentration where faculty find it advisable to do so. The residence requirement must be completed following admission to the Ed.D. program.

All degree requirements must be completed within seven years from the time of admission as a doctoral applicant.

Basic Ed.D. Program

Doctoral Seminars—Students must elect two doctoral seminars from the following foundation areas: educational administration, educational psychology, educational sociology, history and philosophy of education. These seminars are open only to doctoral students.

A minimum of sixteen credits is required in course work aimed at developing competence in statistics and research methodologies. At least eight credits of the minimum requirement will consist of a comprehensive course in evaluation and statistics and an advanced course in research methodology and experimental designs. The other eight credits will include research electives appropriate to the needs of the student, department research seminars, internships in research, or any combination thereof.

A minimum of sixteen credits of graduate course work (non-education) taken outside the College of Education is required of all doctoral applicants.

The minimum number of credits required in the field of concentration is thirty-six. The courses constituting the major will be specified by the department in which the student selects the concentration. Course work in the field of concentration is not restricted to courses offered by the College of Education.

A minor in professional education, consisting of a minimum of sixteen credits, is required. Courses included in the minor will be selected by the student and his adviser in conjunction with the minor field committee member. The minor must be selected from the areas of concentration listed on page 68.

The doctoral student is required to submit a dissertation on a topic satisfactory to his doctoral committee. Thirty credits are required in dissertation research.

A maximum of twenty credits in non-dissertation research may be included in the doctor of education program.

Electives may be chosen from the foundations of education, non-dissertation research techniques, or any course work the applicant and adviser feel is appropriate to the student's individual program.

A plan of work must be filed and approved by the adviser and Graduate Officer during the quarter in which the student is completing twenty-seven credits of work under advisement. Failure to file a plan of work will preclude further registration.

Required Examinations

Final written examinations in the major field of concentration and the minor in professional education will be required. The exact time of these examinations will be determined by the adviser and the student but should not be delayed past the quarter in which all course work is completed. An oral examination may be administered upon the advice of the doctoral committee following the written examinations in the major and minor fields. When performance on a final examination is unsatisfactory, the student may request a re-examination which must be taken within one year of the date of the first examination. The second examination shall be considered final.

A final oral examination on the dissertation is conducted by the student's doctoral committee under the auspices of the Graduate Education Office.

¹ Applications are not being accepted at the present time.

A member of the graduate faculty outside the College of Education or the non-education member of the doctoral committee will serve as moderator. Members of the graduate faculty may attend.

DOCTOR OF PHILOSOPHY IN EDUCATION

The Ph.D. degree is not available in the area of College Teaching in Divisional Areas of General Education. Otherwise, the Doctor of Philosophy embraces the same fields of concentration as the Doctor of Education.

Admission procedures for the Ph.D. program are essentially the same as those for the Ed.D.

Degree Requirements — Of the minimum 135 credits required beyond the bachelor's degree a minimum of forty-five credits in course work must be completed in the major field, including at least thirty-six credits in the area of concentration. Forty-five credits in dissertation research are required in the Ph.D. program. All credit used toward meeting dissertation requirements must be acquired by enrolling in the course designated to carry doctoral dissertation credit for that field of specialization in which the student is enrolled. The remaining credits will be assigned to research or course work in accord with the needs of the student and the requirements in the field of concentration. At least one minor is required and must be elected outside of the College. Twenty credits in research are required beyond the minimum Ph.D. program requirements.

A plan of work, qualifying examinations, and a Final Public Lecture-Presentation are required. Satisfactory completion of the full-time residency requirement must be certified by the adviser and the College graduate officer. Ph.D. applicants are advised to consult the Graduate Division section of this bulletin (page 19) for additional information. Also, please consult the College of Education *Doctoral Policies and Procedures* bulletin, available in room 489, College of Education Building, for further specific Ph.D. requirements.

Graduation

Graduation deadline dates for the quarter in which candidates are completing degree or education specialist certificate requirements are issued on receipt of the application by the Graduate Education Office.

Information concerning commencement announcements, caps and gowns, invitations, tickets, time and place, and other relevant items will be mailed to graduates by the Class Board prior to the event. Candidates for doctoral degrees are requested and expected to attend the commencement at which the University confers upon them the honor of the degree earned.

ACADEMIC PROCEDURES

For complete information regarding academic rules and regulations of the University, students should consult the General Information section of this bulletin, beginning on page 5. The following additions and amendments pertain to the College of Education.

NORMAL PROGRAM LOAD

The normal undergraduate student load is sixteen credits per quarter. Only in exceptional cases is a student allowed to elect a heavier program. Approval of the adviser and authorization by the Head of the Division of Academic Services must be secured in those cases where the student petitions to carry more than eighteen credits within a full quarter.

The full-time graduate student's program load is limited without exception to a sixteen credit maximum by the Graduate Division.

If a significant portion of a student's time is spent in outside work, corresponding adjustments must be made in his college schedule. *Undergraduate* students who are working full time may elect a maximum of eight credits with approval of the adviser. A *graduate student* working full-time who desires to carry more than eight credits must secure permission from the Head of the Division of Academic Services, who serves as Graduate Officer.

READMISSION

Following an Interruption in Residence

Undergraduate students whose attendance at Wayne State has been interrupted for three or more years will be required to apply at the College of Education Division of Academic Services for readmission to the College. Deadline dates for such applications are the same as those for regular admission to the University. In instances of prolonged absences of five years or more, it may be necessary to revalidate credit, either through examinations or refresher courses, within the student's major and the professional education sequences.

Graduate students who are returning to work on graduate programs after an absence of three years or more should report to the Central Records Office, room 150, Administrative Services Building, before attempting to register.

Graduate students who have received a master's degree from Wayne State University and have not registered since the degree was conferred, and who desire to pursue further graduate work in the College of Education, must complete, in person, a post-master's readmission form in room 489, College of Education Building.

ATTENDANCE

Regularity in attendance and performance is necessary for success in college work. *Although there are no officially excused absences as far as College policy is concerned, the conscientious student is expected to explain absences to the instructor.* Such absences may be due to illness; to participation in inter-college activities, certified by the sponsoring faculty member; or other similar types of absence for which the student can present to the instructor evidence that he was engaged in authorized University activities. Each instructor at the beginning of the course will announce his attendance requirements.

PROBATION AND WITHDRAWAL

If, at any time, an *undergraduate* student's scholastic average falls below 2.0, he is automatically placed on probation. If his general average is acceptable but his work in professional courses, especially in student teaching, is unsatisfactory, he may be placed on probation. A student on probation must secure the approval of the Head of the Division of Academic Services before registering for subsequent work in the College. The College reserves the right to ask a student to withdraw at any time from specific courses or from the College entirely, if his progress does not warrant continuance.

GRADUATE PROBATIONARY ADMISSION

An applicant with an honor point average below 2.25 must earn a minimum of twelve quarter hours of advanced level post-degree credit with an h.p.a. of at least 3.0 in order to be recommended for graduate admission. Course work taken to establish eligibility for admission to graduate study cannot be used toward a graduate degree.



ACADEMIC SERVICES

Office: 489 Education

Head: Howard E. Reilly, Professor

Assistant to the Division Head: Mary Esther Manion

Undergraduate Programs: Deena Coates

Graduate Programs: Toni Allen, Christine Dykstra

Teacher Certification: Dolores Stevens

Teacher Placement: Chester McCormick, Professor
Robert Cullinan

PURPOSES

The Academic Services Division is responsible for admitting undergraduate and graduate students to the programs of the College of Education, maintaining all student files, and processing and certifying that graduation and teaching certificate requirements have been met. As the initial contact point for prospective students at all degree levels, the Division provides information and advice concerning various programs offered by the College, admission procedures, teacher certification and degree requirements, and regulations and policies pertaining to the College and the University.

Counselors in the Academic Services Division may act as temporary advisers for students who have not been assigned permanent advisers or who have special needs. In most cases, the counselors act as advisers for in-service teachers working for continuing certification and for those seeking additional certificate endorsements and conversions.

TEACHER PLACEMENT

In addition to the above services, the Academic Services Division houses the Teacher Placement Office for the College of Education. This unit serves graduates of the College who have completed initial teacher-preparation or advanced graduate programs and in-service teachers enrolled either now or previously in the University. All persons qualifying for teachers' certificates and those completing graduate programs are urged to register with this office.

Close contact is maintained with school systems in Michigan and in other states. Attempts are made to keep informed of current policies on teacher qualification and selection and trends in teacher supply and demand. College and university staff vacancies for professional positions throughout the United States are listed with this office.

The specific functions of the Teacher Placement Office are: to assist registrants in preparing their credentials and in securing teaching positions; to assist school administrators in obtaining qualified teachers for the vacancies they may identify; and to assist in-service teachers and graduates who may wish to advance professionally.

SERVICES TO STUDENTS

The College of Liberal Arts advisory staff, second floor, Mackenzie Hall, provides a thorough program of advising for the freshman and sophomore students enrolled in the

pre-teaching curriculum prior to their transfer to the College of Education at the beginning of the junior year.

The Student's Adviser — Each student admitted to the College at the undergraduate or graduate level and seeking a degree or a teacher's certificate is assigned to a faculty member who acts as his adviser. The adviser guides the student in the selection of courses and counsels him in solving problems.

OFF-CAMPUS CENTERS

The College offers undergraduate and graduate course work through the College of Lifelong Learning in off-campus centers throughout the Detroit metropolitan area. Courses given at these centers provide residence credit and are comparable to the offerings on the main campus.

ALUMNI ASSOCIATION

The College of Education Alumni Association (formerly the Detroit Teachers College Alumni Association) was organized in 1893 in connection with the Detroit Normal Training School. In the years since its origin, its membership has continually increased.

The aims of the Association, as set forth in its constitution, are (a) to foster a spirit of loyalty to the College, (b) to raise the standards of the teaching profession, (c) to assist professionally and financially those who need help, (d) to keep alive the spirit of real fellowship, and (e) to encourage worthwhile contacts between the student body and the Alumni Association. In addition to being supportive of the University and meeting the needs of the membership through appropriate programs, the Association in recent years has addressed itself to ways in which it can be of service to the broader community, recognizing that only through this commitment can it be a viable force in an urban university setting.

The Alumni Association has been generous in its gifts to the College. A gift provided complete furnishings for two rooms in the College of Education building — the Alumni Conference Room, and the Faculty Lounge. The Alumni Association provides scholarships for deserving students, sponsors the Golden Anniversary Tea in honor of fifty-year graduates of the College, joins with the faculty and administration of the College in an annual Alumni-Faculty Day Conference, honors both alumni and faculty with awards and recognition, and supports the work of the Dean and his staff in carrying forward many activities of mutual interest and concern.

In becoming active members of the Association, the graduates of the College have ample opportunity to uphold and develop the best movements and ideals set forth by educational leaders and to lead in professional friendliness among all teachers.

EDUCATIONAL LEADERSHIP

Division Head: Carroll L. Munshaw, Professor
369 Education Building

PROFESSORS

Gerald W. Boicourt, John W. Childs, Morrel J. Clute, Roger A. DeMont, Ruth E. Ellsworth, Frank J. Estvan, Harlan L. Hagman, Jean F. Hamilton, Larry W. Hillman, William E. Hoth, Wendell M. Hough, R. Duane Peterson, Sigurd I. Rislov, J. Edward Simpkins, Mark H. Smith, Jr., Ronald V. Urick.

ASSOCIATE PROFESSORS

Thomas E. Burford, Joella H. Gipson, Robert C. Henderhan, Aubrey V. McCutcheon, Jr., David M. Pendergast, William P. Sosnowsky, Albert F. Stahl.

ASSISTANT PROFESSOR

Burnis Hall, Jr.

INSTRUCTOR

Marcee Martin

PURPOSES

The Division of Educational Leadership has as its primary goal the development and enhancement of leadership and technology in educational systems, organizations, and institutions.

It is within the scope of this division to continue to study emergent trends and educational innovations; to develop rationales for supporting educational change; and, to present viable programs of study for advanced students in education which will enable them to function skillfully as educational leaders in facilitating change, and in developing and conducting on-going programs.

DEGREE PROGRAMS

Programs offered under the guidance of this Division include the Master of Education, Doctor of Education and Doctor of Philosophy degrees and the Education Specialist Certificate. See the preceding section for general degree requirements. For specific program information and requirements students should consult an appropriate divisional adviser.

Instructional Technology

Each degree program in instructional technology is designed to prepare graduates to meet the various levels of requirements for positions ranging from building level to multi-institutional levels of responsibility in K-12 and higher education as well as training in business and industry. Graduates generally function in one or more of the following categories: instructional-development, media or learning resources consultants or managers, teaching and research.

Educational Leadership

The Master of Education degree in Educational Leadership includes subspecializations in the following areas: reading, alternative education, special education, general secondary education, adult and higher education, and instructional technology.

Curriculum Development

Curriculum development programs in the Division of Educational Leadership are designed for persons who expect to exercise leadership in developing, evaluating, and improving curriculum and instruction in schools in the areas of elementary curriculum and instruction, leadership in curriculum, and secondary curriculum and instruction. The concentrations within curriculum development serve educators involved in curriculum development, team teaching leaders, program area specialists, learning resource or media center personnel, and supervisors, administrators, and coordinators or directors of curriculum.

Students develop leadership knowledge and skills, generate and use research findings in curriculum and instruction in classrooms, in schools, school systems, intermediate school districts, community agencies, and colleges and universities.

General Administration and Supervision

The primary purpose of the general administration and supervision program is to provide for the preparation and growth of those professionals who are currently employed as or are aspiring to central office administrative positions in public and private school systems.

Elementary Administration and Supervision

The program in elementary administration and supervision develops and enhances the leadership skills required for the effective operation of elementary schools and programs. Career goals addressed by the program include but are not limited to: principals, directors, university and college professors, directors of research, and roles in intermediate school districts and state departments of education.

Secondary Administration and Supervision

The program in secondary administration and supervision provides preparation and in-service improvement of secondary schools and secondary school programs: (a) in the function of status leadership in program improvement; (b) in the techniques of effective school administration.

Higher Education

The program in higher education prepares individuals for positions in college and university teaching, college and university administration, and for research in higher education.

Special Education — Administration

The program in special education leadership prepares persons for positions as special education administrators, directors, supervisors, and curriculum resource consultants/specialists.

The Division of Educational Leadership is responsible for recommending to the Michigan Department of Education non-classroom professional personnel for approval to function in state reimbursed special education programs. Applicants for the degree programs in special education leadership should possess equivalents of full approval in a categorical or ancillary area of special education.

COURSES OF INSTRUCTION¹ (ELD)

5011. Survey of Educational Systems of Major European Countries. Cr. 4.

Present-day developments in education in those countries of Europe which have influenced schools in all parts of the world: notably England, France, Germany, Scandinavia, Russia; emphasis on historical, political, social and economic bases for school systems in these countries. Recent reform movements and developments stressed.

5761. Educational Technology (L S 5491). Cr. 4.

Principles of performance-based instructional decision making applied to the selection, utilization and evaluation of instructional materials and equipment; for large group, small group, independent study and individualized instructional techniques.

5762. Instructional Material Workshop (L S 5512). Cr. 2-4 (Max. 4).

Prereq: ELD 5761 or consent of instructor. Design and development of packages of projected and non-projected instructional devices and materials such as film-strips, slide-tape systems, 8mm single concept films, and overhead projector transparencies, audio-tapes and video-tapes.

6010. Field Studies in Education. Cr. 2-12 (Max. 12).

Prereq: consent of adviser or instructor. Supervised professional study in field settings.

6014. Local School Curriculum Planning. Cr. 2-8 (Max. 16).

Prereq: teaching experience and consent of instructor. For teachers, supervisors, and administrators. Consideration of local problems in elementary and secondary school programs. Planning for better teaching and learning. Emphasis on leadership.

6083. Educational Implications of Perception. Cr. 3-9.

Study of recent formulations in perception with implications for uniqueness, cooperation, specialization, self-concept, freedom, creativity. Emphasis on leadership.

6505. The Middle and Junior High School. Cr. 3-9 (Max. 9).

Modern trends and issues in the curriculum and administration of the junior high school and middle school. Problems of organization, instruction, guidance, orientation.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

6761. Introduction to Systems Techniques in Educational Planning and Management. Cr. 4.

Prereq: consent of instructor. Identification and application of various systems techniques in educational planning and management.

6762. Workshop in Developing Performance-Based Instruction. Cr. 2-4 (Max. 4).

Prereq: ELD 5761 and 5762 or consent of instructor. Principles of behaviorally planned instruction applied to the design, development, implementation and evaluation of behaviorally based instruction activities and materials.

6763. Techniques of Individualized Instruction. Cr. 4.

An individually paced course in how to organize and manage individualized instruction.

6765. Organization and Management of Learning Resources. Cr. 4.

Prereq: ELD 5761 or 7825 and consent of instructor. Open only to master's candidates in instructional technology, library science, educational administration. Evaluation and management of learning resources; design, organization and operation of Learning Resource Center facilities.

7011. Survey of Educational Systems in Developing Areas of the World (TBF 7011). Cr. 4.

Prereq: ELD 5011, or consent of adviser or instructor. Educational programs in Asia, Latin America, and Africa; influence of European and American school systems. Local cultural and economic factors. Community development, UNESCO and other aid programs. Orientation for study and research abroad.

7313. Issues in Elementary Education. Cr. 4.

Prereq: teaching experience. Emerging trends in curriculum, content and instructional materials and their implications for elementary school teachers and administrators. Review of the current literature and research with direct application to elementary school problems.

7315. Teaching and Supervision of Reading in the Elementary School. Cr. 4.

Prereq: teaching experience. Development of a reading program for the elementary school. Emphasis on new trends in reading instruction and the problems involved in the organization, administration, and improvement of current reading programs.

7325. Supervision and Advanced Teaching Studies in Elementary School Mathematics. Cr. 4.

Prereq: teaching experience and a methods course in mathematics. Recent trends in the psychology and teaching of elementary school mathematics. Role of mathematics in contemporary life and the school curriculum, organization of a valid elementary mathematics program, psychology of learning as applied to mathematics, interpretation of this psychology into actual classroom procedures, examination of new programs, new developments in teaching and new instructional materials.

7505. Modern Trends in Secondary Education. Cr. 4.

Critical examination of major administrative and curriculum trends and issues in junior and senior high schools through reading, resource consultants, field work, discussion and lectures.

7508. Student Activities in Secondary Schools. Cr. 4.

Organization, sponsorship, and evaluation of such junior and senior high school activities as homerooms, clubs, speech, athletics, dramatics, student government, music, publications, school camping; examination of student dissent and activism.

7761. Instructional Design (LS 7495). Cr. 4.

Prereq: ELD 7825 or LS 5491 or consent of instructor. Students acquire and practice the rules of instructional design, are videotaped and critiqued employing predesigned instructional moves with related devices and materials with selected students, develop individualized instructional packages representing association, classification and application tasks.

7764. (SPH 0880) Seminar in Computer Assisted Instruction. Cr. 3.

Prereq: consent of instructor. Application and evaluation of command languages, files, and programs of computer-based or controlled instructional languages to the communication media.

7765. Technological Research in Instruction. Cr. 4.

Prereq: ELD 5761 and 7761 or consent of instructor. Developmental and evaluation research proposals, techniques for assessing instructional sequences, methods of large-scale curriculum evaluation and research, instructional packages.

7768. Designing Simulation Systems for Instruction. Cr. 4.

Prereq: consent of instructor. Students acquire and practice the rules of simulation design so as to plan, produce and evaluate a learning game simulation, and a problem resolution simulation; survey and evaluate commercially available simulations.

7781. Curriculum Planning for Alternative Schools. Cr. 4.

Prereq: admission to graduate school. Concepts of curriculum planning; the means to implement programs in alternative schools.

7790. Survey of Mathematics Education: Europe, Asia, Africa. Cr. 4.

Prereq: 16 credits in graduate education. Current and projected practices in mathematics education in those countries of Europe, Africa and Asia which have influenced programs in schools in all parts of the world.

7791. Urban Resources for Children in Mathematics Education. Cr. 4.

Prereq: TED 6526 or consent of instructor. Mathematics resources in an urban environment. Field trips, conferences with resource personnel, investigation of curricular materials. Implications and laboratory for urban ecology and urban renewal, and the city as a mathematics educational center.

7800. Organization and Administration of Career Education. Cr. 4.

The conceptual framework of career education and the organization, implementation and administration of career education programs.

7801. The Structure of American Education. Cr. 3.

Major organizational, administrative, legal and extra-legal problems affecting public education in the United States.

7802. Leadership in Community Education. Cr. 4.

Prereq: ELD 7801 or consent of instructor. The development, organization, administration, and financing of community education.

7803. Leadership in Educational Administration. Cr. 4.

Prereq: ELD 7801. Principles underlying such areas of administration as education, government, business and social agencies.

7804. Administration of Public School Systems. Cr. 4.

Prereq: ELD 7801. Problems of administrators working with boards of education, staff, community, county, state and federal governments.

- 7805. Business Administration of School Systems. Cr. 4.**
Prereq: ELD 7801. Selected problems in the field of business administration of schools.
- 7806. Administrative Leadership in School-Community Relations. Cr. 4.**
Prereq: ELD 7801. Considerations by school administrators of relationships between the school and the community with special reference to social change, community needs and the total school program.
- 7807. Introductory Seminar in Educational Administration and Supervision. Cr. 3.**
Prereq: admission to education specialist program and recommendation of adviser. Initial experience for majors in general, elementary and secondary school administration and supervision. Experiences in self-appraisal in relationship to the administrative role. Study of theories and practices in educational administration and supervision.
- 7808. Problems in School Personnel Administration. Cr. 4.**
Prereq: ELD 7801. Study of staff, personnel problems.
- 7809. Humanistic Leadership in Alternative Education. Cr. 3-4.**
Prereq: admission to graduate school. Qualities of humanistic education and the ways in which alternative education approaches develop humanism.
- 7810. Seminar in Current Economic, Social, and Political Issues Affecting Education. Cr. 3-6.**
Prereq: consent of instructor. A study of current social, economic, and political issues as they affect education in an urban area.
- 7811. Fiscal Problems in Education. Cr. 4.**
Prereq: ELD 7801. Fiscal problems of public education at local, state and federal levels.
- 7813. Administration of Programs in Special Education and Pupil Personnel. Cr. 4.**
Prereq: consent of instructor. Professional problems; standards and procedures; references to history, development, philosophy, legal provisions, rules and regulations; major developments and trends at federal, state and local levels; services of other organizations and agencies.
- 7814. The Elementary School Principalship. Cr. 4.**
Prereq: teaching experience. For experienced teachers and administrators entering the field of elementary school administration. Research findings and sources of information in the field. The principal's role in instructional leadership.
- 7815. Secondary School Administration. Cr. 4.**
Prereq: teaching experience. Organization and administration of middle, junior and senior high schools. Analysis of administrative problems relating to curriculum improvement, staff personnel, guidance, instruction, and school-community relations.
- 7818. Supervision of Instruction. Cr. 4.**
Prereq: teaching experience. Instructional leadership in changing school organizations. Systems theory and curriculum administration. Work of the curriculum coordinator, principal, assistant principal, department heads, consultants, team leader, project coordinator, teacher and other personnel in planning and implementing programs, supervisory techniques for teaching analysis.
- 7824. Organizational Development: Leadership in Directing Organizational Change. Cr. 4.**
Prereq: minimum of 20 credits completed in Educational Leadership courses. For graduate degree and education specialist program students only. Theories of self-renewal and self-correction and coping with change within personnel systems in organizational structures. Application of methods and techniques emergent therefrom as applied to educational institutions (especially K-14 schools).
- 7825. Introductory Graduate Seminar in Instructional Technology. Cr. 4.**
Prereq: consent of adviser. Students define the field of instructional technology, identify professional journals and organizations associated with the field, define and explore philosophical issues in the field, and select and explore the research foundations of areas in the field of instructional technology.
- 7826. Research and Directed Study. Cr. 1-4 (Max. 4).**
Prereq: consent of adviser and graduate officer.
- 7827. Introductory Master's Seminar. Cr. 3-4.**
Prereq: admission to master's program in the area of educational leadership. Required for the master's degree. Orientation to the program and assessment of the applicant's competencies. Emphasis on writing, research, discussion, critical thinking. Completion required prior to approval of student's *Plan of Work*.
- 7829. Terminal Master's Seminar and Essay or Project. Cr. 4.**
Prereq: consent of adviser.
- 7854. Adult Learning. Cr. 4.**
Diagnosing germane adult interests and learning styles. Designing objectives, teaching procedures and materials consistent with those interests and styles.
- 7855. The Community College. Cr. 4.**
Characteristics of community colleges: origins; how they are organized, financed, and controlled; sites, programs, staffs, and students; relation to state and federal governments.
- 7857. Adult Education in a Changing Society. Cr. 4.**
Prereq: consent of adviser. Examination and analysis of adult education practices, trends and issues, and their relationship to a constantly changing society.
- 7858. Education Programs for the Undereducated Adult. Cr. 4-8.**
Prereq: consent of adviser. Exploration of magnitude, distribution, character, causes and consequences of cultural and educational deprivation with special emphasis on basic education.
- 8012. Implementing Curricular Innovations and Instructional Development. Cr. 4.**
Innovations in selected secondary areas: English, mathematics, science, social studies.
- 8013. Basic Principles of Curriculum and Instruction. Cr. 4.**
Theoretical bases for curricular development and instructional innovation. Their application to the tasks of the curriculum maker explored as various educational positions are taken and examined.
- 8014. Problems in Curriculum Construction, Supervision and Administration. Cr. 4.**
Prereq: teaching experience, ELD 8013 or consent of instructor.

Limited to students who have completed at least 18 credits in a master's program. Individual work on the solution of a curriculum problem facing a curriculum leader. Group work on related problems. School visitation.

8015. Staff Development Through In-Service Training.
Cr. 3-9 (Max. 9).

Current and projected practice that may be effectively employed to establish, maintain and systematically improve the quality of in-service training programs designed to meet specified staff development problems.

8027. Leadership in Curriculum. Cr. 4-16 (12 required).

Open only to students in the doctoral program in leadership in curriculum. Topics to be announced in seminar.

8760. Problem Analysis in Instructional Planning and Management. Cr. 4.

Prereq: ELD 6765 or consent of instructor. A systematic approach to problem identification, solving and decision making in instructional planning and management.

8761. Readings in Instructional Technology. Cr. 4.

Prereq: ELD 7761. Investigation of the latest research studies and theoretical essays in the field to develop and discuss new research.

8762. Practicum — Instructional Technology. Cr. 4-8 (Max. 8).

Prereq: ELD 7761, consent of adviser and instructor. Offered for S and U grades only. Students design, develop, use, and evaluate instructional systems and subsystems in an educational setting.

8763. Individual Projects in Instructional Technology.
Cr. 2-4 (Max. 4).

Prereq: ELD 7761 and consent of instructor. Packages of materials and devices for instructional technology developed through individual design and production.

8764. Designing Multi-Media Learning Spaces. Cr. 4.

Prereq: consent of instructor. Identification, exploration and application of design criteria which will facilitate the use of multi-media in the teaching and learning environment both in education and industry.

8767. Human Factors and the Design of Instructional Man/Machine Systems and Facilities. Cr. 4.

Prereq: consent of instructor. Identification, exploration, and application of the limits and constraints of human factors in the design of instructional man/machine systems and facilities.

8780. Development of Alternative Education. Cr. 4.

Prereq: admission to graduate school. Alternatives to conventional schooling through study of open schools, free schools, schools without walls. Skills necessary to implement alternative education.

8791. Alternative Futures in School Administration. Cr. 4.

Prereq: admission to Ed.S. or doctoral programs. Systematic analysis of future studies with implications for school administration. Principles and methods in the field of futuristics for application in school administration.

8792. The Role of the Special Education Curriculum Resource Consultant. Cr. 3-4.

Prereq: consent of instructor. Examination of role of the curriculum resource consultant in its emergence state-wide and nationally. Required competencies; individual student needs.

Prereq: consent of instructor. Supervised field-based experiences or individualized and contracted plan of supervised field study for special education and pupil personnel administrators, curriculum resource consultants, supervisors, administrative consultants, and project directors. Multi-level practicum sites arranged.

8793. Special Education and Pupil Personnel Leadership Practicum. Cr. 4-12.

Prereq: ELD 5761 or ELD 7803 or consent of instructor. Application of systems analysis and operations research techniques to special education and pupil personnel curricula and programs.

8794. Special Education and Pupil Personnel Leadership Clinic-Workshop. Cr. 4 (Max. 8).

Prereq: ELD 5761 or ELD 7803 or consent of instructor. Application of systems analysis and operations research techniques to special education and pupil personnel curricula and programs.

8802. Internship in Educational Administration. Cr. 3-12 (Max. 12).

Prereq: consent of college coordinator of administrative internship programs. Supervised experience in administration of public education. Internship in cooperating school system including seminar.

8803. Seminar in Research and Theory of Educational Administration. Cr. 4.

Prereq: ELD 7804. Research and theory relating to the administration of schools.

8805. Seminar in Simulation of Secondary School Administration.
Cr. 4-8.

Prereq: teaching experience. Simulated experiences in the role of a secondary school principal; comparison of alternative responses to identical stimulus conditions; theory and practice of decision making; analysis of aspects of individual administrative style.

8807. Case Studies and Problems in Metropolitan School Administration. Cr. 3-4.

Prereq: ELD 7801, or consent of instructor. Lecture, discussion, field study, seminar. How metropolitan school systems are meeting educational needs in changing urban centers; significant educational developments in Detroit and Flint; trends and practices in the organization and administration of metropolitan government.

8808. Planning and Improving School Facilities. Cr. 4.

Prereq: ELD 7801 or consent of instructor. Designed to assist school personnel in writing educational specifications, developing long range building and curriculum programs and improving existing facilities.

8809. Field Study in School Plant Planning. Cr. 4.

Prereq: ELD 8808 and consent of instructor. Intensive field work as a member of a staff planning a total building program, a construction project or a school building survey.

8810. Internship in School Plant Planning. Cr. 4.

Prereq: ELD 8808, 8809, and consent of instructor. Internship in a role of major responsibility in a school building survey, a total building program or a construction project.

8811. Workshop in Educational Administration. Cr. 3-12 (Max. 12).

Prereq: ELD 7801. Practicum in the study of current problems affecting education.

8812. The Role of Administrators and Supervisors in Collective Negotiation. Cr. 4.

Development of negotiation in education; features of applicable laws; strategy; analyses of existing contracts; composition of management negotiating team.

8813. Seminar in Administrative Behavior and Personnel. Cr. 4.

Prereq: ELD 7808. Case studies in administrative behavior and personnel administration.

8814. School Law for Educators. Cr. 4.

Prereq: ELD 7801. Selected legal problems related to the organization and administration of schools.

8817. Culminating Seminar in Educational Administration and Supervision. Cr. 3.

Prereq: completion of major portion of the education specialist program of studies, including the field study. Synthesis of advanced work. Forces influencing administrative and supervisory decision making; implications of alternative decisions with conditions held constant; concepts affecting the administrator's role.

8820. Field Study. Cr. 2-9 (Max. 9).

Prereq: consent of adviser or supervising instructor. Supervised professional study in field settings.

8826. Research. Cr. 2-9 (Max. 9).

Prereq: written consent of adviser.

8827. Advanced Seminar. Cr. 4-8 (Max. 12).

Prereq: admission to education specialist or doctoral program and consent of adviser. Topics to be announced in *Schedule of Classes*.

8829. Master's Thesis Research and Seminar. Cr. 2-12 (12 required).

Prereq: consent of adviser.

8853. The American College. Cr. 4.

Prereq: consent of adviser. Types of higher institutions; purposes and programs; institutional life; policies relating to faculty personnel, salaries and retirement; kinds of control and financial support. (For persons preparing for college teaching or college administration.)

8854. History and Philosophy of Higher Education in America (TBF 7607). Cr. 4.

Prereq: consent of adviser. The growth and development of American higher education including events, circumstances, and ideas that influenced it.

8857. Seminar in Higher Education. Cr. 4.

Examination of the elements basic to a theory of knowledge and a clarification of the conditions to be met in order for higher education research to be a significant contribution to knowledge.

8858. Administration in Higher Education. Cr. 4.

Prereq: graduate standing. Principles of administration applied to leadership in colleges and universities. Special projects according to positions held and particular interests of students.

8859. Advanced Seminar in Higher Education. Cr. 4.

Prereq: ELD 8857. Preparation and evaluation of research papers in higher education.

8860. Message Designs for School Leaders. Cr. 4.

Review of communication theory applied to professional writing and oral delivery (reports, proposals, summaries, memos, letters, articles, and studies). Emphasis in professional style on flexibility in organization, "authenticity of voice," acceptable standards, techniques of knowledge retrieval and dissemination.

9761. Research Seminar and Practicum. Cr. 2-4 (Max. 4).

Prereq: TBF 7663 and 7664 or ELD 8761 or consent of adviser. Students develop a research proposal, critically evaluate each other's research proposals, conduct pilot studies which will lead to more productive research in the field.

9765. Educational Futures. Cr. 4.

Prereq: 20 hours in graduate education courses and consent of instructor. Examination of the validity of currently employed inferential techniques for predicting educational futures such as the Delphi Technique, scenario, conjecture, and other inferential procedures.

9801. Doctoral Seminar in Educational Administration. Cr. 4.

Prereq: formal admission to a doctoral program in education. For doctoral majors in other areas of concentration only. Purposes of education as defined in both federal and state constitutions, statutes and administrative rules; interpretation of policy statements of organizations and commissions.

9821. Research Seminar and Practicum. Cr. 4-8.

Prereq: consent of adviser and eight credits in required research techniques. Students develop research proposals, critically evaluate each other's research designs, plan dissertation format and conduct necessary pilot studies.

9826. Research and Directed Study. Cr. 2-6 (Max. 6).

Prereq: consent of adviser and graduate officer.

9829. Doctoral Dissertation Research and Direction. Cr. 1-16 (Ed.D., 30 required; Ph.D., 45 required).

Prereq: consent of adviser.

LIBRARY SCIENCE

Office: 315 Kresge Library

Director: Robert E. Booth, Professor

PROFESSORS

Genevieve Casey, Margaret Grazier

ASSOCIATE PROFESSOR

Miriam Larson, Edith B. Phillips

ASSISTANT PROFESSORS

Freddie Mae Brown, Michael Keretztes, Betty Maurstad, Diane S. Mirvis

PURPOSES

The purpose of the Division of Library Science is to enable graduates to perform effectively as librarians who have achieved some understanding and appreciation of the nature and function of the library in the organization and communication of the recorded ideas, knowledge, and information of mankind.

To achieve this purpose, the Division in its program sets these goals for its students:

To understand the ethic of the profession as it relates to the responsibilities of the library and of the librarian.

To understand that the need, actual or potential, of the individual and the community for information is the foundation of the library as an institution.

To be sensitive to the library's unique opportunity and responsibility in an urban multi-ethnic milieu.

To understand basic concepts about the structure and organization of knowledge.

To gain the skills essential for fulfilling the various requirements of specific library situations.

In order to realize these goals, objectives have been formulated:

To understand the interdependence of all social institutions and the role of the library within this social framework.

To understand the responsibilities of the librarian for providing and for protecting the individual's and community's right of access to recorded knowledge.

To understand the interrelation of libraries and the need for coordination in the improvement of library service.

To understand the relationship between research in librarianship and the strength of the profession.

To understand the need for continuous study and self-evaluation for professional growth.

To understand ways of identifying the needs of individuals and groups for library services, and of planning and evaluating programs designed to respond to these needs.

To understand the characteristics of the various disciplines, their structure, concepts, methods of investigation, and communication of the knowledge generated.

To understand the pattern of bibliographic control of the literature and the particular reference tools used to retrieve information for the scholar and for the layman.

To understand the principles and methods of selecting, acquiring, organizing, storing, retrieving, and disseminating the recorded information of mankind.

To understand the interrelation between the principles and methods of librarianship and social and technological change.

To understand that effective management is necessary to achieve the goals and objectives of the library.

The skills necessary to effect these objectives are incorporated within the curricula offered by the School.

The Division offers programs at the undergraduate and master's degree levels. The Division is a member of the Association of American Library Schools, and the Master of Science in Library Science program is accredited by the American Library Association. The course in medical librarianship is accredited by the Medical Library Association.

GRADUATE PROGRAM

MASTER OF SCIENCE

in Library Science (M.S.L.S.)

This is a professional library science degree accredited by the American Library Association and is designed for public, academic, special, or school librarianship.

Admission

The applicant must present evidence of satisfactory undergraduate preparation for his field of specialization and must meet all requirements of the Division of Graduate Studies and be accepted for study toward the graduate professional degree by the graduate staff of the Division of Library Science. Prerequisites include a B.A. or B.S. degree with undergraduate courses so distributed as to give the student a *minimum* of 100 credits of general education. A reading knowledge of a modern foreign language is recommended for students planning to work in libraries with an emphasis on research and adult services.

Degree Requirements

In this degree program, the student must complete a minimum of forty-five credits, to be distributed as follows: twenty-four to twenty-eight credits in the library science professional core, and normally a minimum of twelve credits in the area of library science specialization. A maximum of eight credits in courses outside of Library Science may be accepted as cognates.

The Professional Core

(24-28 credits)

	<i>credits</i>
LS 5497..... Introduction to Librarianship (All students must take this as their first graduate Library Science course.)	4
LS 5495..... General Reference Service	4
LS 6494..... Technical Services in Libraries	4
LS 7499..... Terminal Master's Seminar and Essay or Project	4

And at least two of the following three courses:

LS 8493..... Subject Reference and Bibliography: Humanities	4
LS 8494..... Subject Reference and Bibliography: Science and Technology	4
LS 8496..... Subject Reference and Bibliography: Social Sciences	4

Library Science Electives

(12 credit minimum)

Students are expected to take at least one but not more than two types of library courses, for example, Library Science 5513, 6493, 7492, or 8491, or alternatively, a functional specialization, e.g., Library Science 8492, 8498. Those students preparing for school library-media service should consult adviser about requirements for this specialization.

Minor Cognates

(optional)

The student may elect courses outside of Library Science appropriate for his specialization with the adviser's consent.

Areas of Specialization

The following twelve areas of specialization have been identified within Wayne State's graduate Library Science program.

- Academic Library Specialization
- Archives Specialization
- Correctional Institutions Specialization
- Gerontology Specialization
- Medical Librarianship Specialization
- Public Library: Adult Services Specialization
- Public Library: Children's Services Specialization
- Public Library: Outreach Specialization
- Public Library: Young Adult Specialization
- School Library-Media Specialization
- Special Librarianship
- Technical Services Specialization

For each specialization a curriculum may be requested, indicating those courses which are required of all students, those courses required of all students following that particular specialization, and suggested additional Library Science electives and/or cognates outside of Library Science.

Course Profiles

Profiles for each graduate library science course are available to all students. These include course objectives, competencies expected, course content, methodology, and basis for evaluation of student performance.

Field Experience

There are over two hundred libraries of all types in the Detroit Metropolitan area. These provide a rich opportunity for supervised field experience which students may elect for credit. See Library Science 7490.

Plans of Work

When a graduate Library Science student has completed twelve hours of course work, the student meets with the faculty adviser of his/her choice, and prepares a plan of work. This is a formal document in which all courses required for the MSLS degree, and the student's specialization are listed and officially filed.

UNDERGRADUATE PROGRAM

The curriculum provides initial preparation for library/media specialists in elementary or secondary schools. Students interested in school library/media preparation may complete a minor of thirty credits in library science during their junior and senior years. The library science minor qualifies them for library service in the grades for which they receive a provisional certificate (e.g., library science minor on an elementary provisional certificate qualifies the holder for library/media positions in grades K-9).

The combined curriculum in library education and secondary education is offered in two fields: secondary social studies-library science and secondary English-library science. The combined curriculum in library education and elementary education is offered in three fields: English, social studies, and science. Students in the combined curriculum will earn eighty credits in general education in the College of Liberal Arts before their formal admission to the Division of Library Science Education and the Division of Teacher Education in the College of Education. Students planning for school library/media careers are urged to consult with advisers in Library Science (315 Kresge Library) early in their sophomore year for detailed information. Sample programs for those interested in the elementary and secondary school library/media specialty are available upon request.

College of Liberal Arts and Monteth College students interested in public, academic, or special library work may be authorized to take up to twelve credits of appropriate library science courses at the undergraduate level. Such courses would be articulated with the M.S.L.S. graduate degree program. Students interested in this program should consult with advisers in the Library Science Division.

LIBRARY SCIENCE STUDENT ASSOCIATION

The Library Science Student Association is officially recognized by the University as an organization of students in the Library Science Division. Meetings are held regularly throughout the academic year. The LSSA has a Library Science Resource Room, directly across from the Library Science Divisional Offices on the third floor of the Kresge Library.

PLACEMENT SERVICES

As a Division of the College of Education, Library Science students are invited to use the Placement Services of the Teacher Placement Office, housed in room 469 of the Education Building.

LOCATION OF FACULTY OFFICES

The Library Science Division is located on the third floor of the Kresge Library, attached to the G. Flint Purdy Library which is the main library of Wayne State University. In addition to divisional and faculty offices, classrooms, and the Library Science collection are housed in the Kresge Wing.

FINANCIAL AID

See general University information. Each year Library Science students are eligible to apply for graduate professional scholarships which are described in other parts of the university catalog. Candidates are invited to inquire of the Library Science Division director about special fellowships or scholarships.



SPECIAL AWARDS

The Patricia B. Knapp award is given annually to the graduating MSLS student who has demonstrated a high level of scholarship and also shows great promise for success for a career in Librarianship. The Florence Cleary Award (Scholarship) is granted annually by the Library Science Alumni Association. This award is generally made to cover tuition for one course and is given to two students, one at the graduate level and the other at the undergraduate level.

ALUMNI ASSOCIATION

The Library Science graduates have established the Library Science Alumni Association which is active at the local level. Meetings are held frequently throughout the year covering a broad range of library interests, including public, school, academic, and special.

COURSES OF INSTRUCTION¹ (L S)

3496. Directed Study. Cr. 2-6 (Max. 6).
Prereq: consent of adviser.

3498. (TED 3321) Literature for Children. Cr. 4.
See Teacher Education 3321.

5491. (ELD 5761) Educational Technology. Cr. 4.
See Education Leadership 5761.

5492. Selection and Evaluation of Library Materials for Children. Cr. 4.

Study and evaluation of books and audio visual materials suitable for school and public libraries. Bibliographic tools, publishing, and distribution.

5493. History of Children's Literature (TED 5535). Cr. 4.
Prereq: consent of adviser. Historical-bibliographical survey of imaginative and informational literature for children. Analysis and study of sociological and educational aspects of childhood as reflected in the literature.

5494. Selection and Evaluation of Library Materials for Young Adults. Cr. 4.

Acquaintance with and critical analysis of literature and other instructional materials in all subject fields and in all formats.

5495. General Reference Service. Cr. 4.

Reference function of the library; major, general titles in the reference collection with criteria for their evaluation; sources of continuing knowledge of reference materials; processes used in exploiting library resources to supply information.

5496. (CSC 0501) Computers and Research (U P 0552) (CRJ 0531). Cr. 4.

No credit after CSC 0220; no credit for computer science majors. Prereq: one and one-half units high school algebra. Introduction to computing, data processing, and computer utilization for re-

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

search; computer languages, library programs and their use; job control languages.

5497. Introduction to Librarianship. Cr. 4.

The development and place of libraries in society; objectives, functions and trends of major types of libraries.

5498. (TED 5323) The Art of Storytelling. Cr. 4.

Prereq: L S 3498 or TED 5326 or consent of instructor. See Teacher Education 5323.

5512. (ELD 5762) Instructional Materials Workshop. Cr. 2-4.

Prereq: L S 5491 or consent of instructor. See Education Leadership 5762.

5513. School Library-Media Programs. Cr. 4.

The library-media program in elementary and secondary schools; organization, administration and patterns of service.

5518. (TED 5326) Survey of Recent Literature for Children. Cr. 4.

See Teacher Education 5326.

6491. Reading, Viewing, and Listening Interests of Children and Youth. Cr. 4.

Prereq: consent of instructor. Factors related to reading, viewing, and listening interests and their effects. Emphasis on research investigation and application.

6493. Public Library Systems and Services. Cr. 4.

Prereq: consent of adviser. Present-day functions of public libraries as social agencies. Organization, administration, and patterns of service.

6494. Technical Services in Libraries. Cr. 4.

Prereq: consent of adviser. Survey of objectives and methods of acquisition, classification, cataloging, preparation of books and related materials in libraries.

6498. Workshop — Problems in the Selection and Utilization of Learning Materials. Cr. 4.

Prereq: teaching or school library experience. Programs designed to improve selection, evaluation and utilization of library-media resources.

6512. (TED 6532) Literature for Adolescents. Cr. 3-6.

Prereq: directed or regular teaching. See Teacher Education 6532.

6514. (TED 6314) Analysis, Selection, and Use of Literature for Children. Cr. 4.

Prereq: L S 5518 or consent of instructor. See Teacher Education 6314.

7490. Professional Field Experience and Seminar. Cr. 3-4 (Max. 4).

Prereq: 24 credits in appropriate graduate library science courses and consent of supervising faculty. Planned contact with the practicum of librarianship (public and technical services, sociological environment, library personnel) at the professional level through on-site experience in a participating library under the direction of a skilled professional librarian and the supervision of a member of the Library Science Division faculty. Seminars to be arranged. Application for winter and spring quarters by the first day of preceding quarter; for fall quarter by the first day of spring quarter.

7492. Special Libraries and Information Centers. Cr. 4.

Prereq: L S 5497 and L S 6494. Services, planning, organization and administration. Analysis of objectives, personnel, particular relationships to clientele, methods of handling non-book materials, trends in mechanization. Case studies.

7493. School Media Center Administration. Cr. 4.

Prereq: L S 5513 and library-media experience. Management function of the library-media program director in budget, personnel resources and facilities.

7494. Selection and Evaluation of Library Materials for Adults. Cr. 4.

Prereq: consent of adviser. Critical analysis of bibliographic and information sources, aids and tools used in selection of materials for adults. Study and evaluation of books in all subject fields.

7495. (ELD 7761) Instructional Design. Cr. 4.

Prereq: L S 5491, ELD 7825 or consent of instructor. See Education Leadership 7761.

7496. Research and Directed Study. Cr. 1-12 (Max. 12).

Prereq: written consent of adviser and graduate officer.

7498. History of Books and Libraries. Cr. 3.

Prereq: 6 credits in library science. Development of books and libraries from earliest records to the present. Social implication of books and libraries in a democracy.

7499. Terminal Master's Seminar and Essay or Project. Cr. 4.

Prereq: written consent of division head.

7511. (TED 7312) Functions of Literature for Children in the Elementary School Curriculum. Cr. 4.

Prereq: L S 6514 or consent of instructor. See Teacher Education 7312.

7512. (HIS 0702) Introduction to Archival Methods. Cr. 4.

Prereq: consent of chairman. Basic training in archival methods.

7513. (HIS 0703) Introduction to Archival Methods. Cr. 4.

Prereq: consent of chairman. Continuation of History 0702.

7514. (HIS 0704) Introduction to Archival Methods. Cr. 4.

Prereq: consent of chairman. Continuation of History 0703.

7515. Government Publications. Cr. 4.

Prereq: L S 8496. The selection, acquisition, access, and reference use of major federal, state, and local documents. Introduction to selected United Nations materials. Use of indexes and aids.

8491. College and University Library Systems and Services. Cr. 4.

Prereq: L S 5497. Role of academic library in higher education. Organization, administration, and patterns of service.

8492. Automation and Data Processing for Libraries. Cr. 4.

Prereq: written consent of division head and L S 5496 or equiv. Storage and retrieval problems as approached by conventional and nonconventional methods. Computer applications in libraries.

8493. Subject Reference and Bibliography: Humanities. Cr. 4.

Prereq: L S 5495. The library as preserver, organizer, and disseminator of the cultural heritage. The nature of humanistic studies. Bibliographic control of scholarship in literature and the arts.

Reference tools through which works of literature and art are organized, evaluated, and made available for study.

8494. Subject Reference and Bibliography: Science and Technology. Cr. 4.

Prereq: LS 5495. The generation, organization, and pattern of bibliographic control of the literature of both the basic and the applied sciences. Characteristics of the "scientific method" and the "scientific community" which influence the transmission of scientific information. Familiarity with the various forms of scientific communication, both formal and informal, and with the particular scientific reference tools which retrieve information.

8496. Subject Reference and Bibliography: Social Sciences. Cr. 4.

Prereq: LS 5495. Characteristics of the social science disciplines: structure, concepts, methods of investigation. Major figures and significant works in the general field. Bibliographical control (bibliographies, abstracting and indexing services, journals), reference tools (sources of information on scholars, learned societies, statistics), instructional resources.

8497. Medical Bibliography and Medical Library Administration. Cr. 4.

Prereq: LS 6494 and 8494. The bibliographic control of the biomedical literature; on-line access to the National Library of Medicine. Medical library networks, medical legislation and special problems relevant to medical library administration.

8498. Advanced Classification and Cataloging. Cr. 4.

Prereq: LS 6494. Comparative study of the underlying theory, structure, and application of a variety of classification systems; complex descriptive and subject cataloging; special problems relating to organization of recorded information.

8512. Issues in Librarianship. Cr. 3-12 (Max. 12).

Prereq: written consent of division head. Critical analysis of library research, socio-technological trends, implications for the profession. Topics to be announced in *Schedule of Classes*.

8513. Reprography for Librarians and Archivists. Cr. 4.

Prereq: consent of instructor. A basic course in the fundamentals of copying and documentary reproduction.

8514. Introduction to Archival and Library Conservation. Cr. 4.

Prereq: written consent of instructor and advanced standing in master's program. Offered at Greenfield Village Conservation Laboratory. Basic course in the fundamentals of archival and library conservation problems and methods essential for effective preservation management of paper and associated materials.

8515. Principles and Practices of Archival and Library Conservation. Cr. 4.

Prereq: LS 8514 and consent of instructor. Offered at Greenfield Village Conservation Laboratory. Advanced course in library and archival conservation providing theory and practice of basic laboratory preservation and restoration treatment.

8516. Library Service to Special Groups. Cr. 4.

Prereq: LS 6493. Library and information needs of the disadvantaged, what public and school libraries are doing to meet these needs and what skills and attitudes are needed by librarians.

8518. Problems in Administration of Library Systems and Services. Cr. 1-12 (Max. 12).

Prereq: consent of adviser. Current administrative problems affecting library systems and services. Topics to be announced in *Schedule of Classes*.

TEACHER EDUCATION

Division Head: Leonard Kaplan, Professor

241 Education Building

TED Advising: Otis W. Morris, Academic Services Officer

Nancy G. Cross, Academic Adviser

212 Education Building

Art Education Advising Office: 163 Community Arts Bldg.

PROFESSORS

Willard M. Bateson, Donald J. Bissett, Thomas W. Coleman, Jr., Cynthia M. Colvin, Fred S. Cook, Murray A. Douglas, Jean E. Fair, Freda A. Harrington, Polly Mosteller Hughes, Frank W. Lanham, Marian McMillan, Sylvan L. Mikelson, V. Gwen Retherford, Peter L. Sanders, E. Brooks Smith, Eugene P. Smith, Gary R. Smith, Samuel B. Stone, Helen T. Suchara, Louis F. VanderLinde, Earl A. Weiley, Frank O. Youkstetter

ASSOCIATE PROFESSORS

Margaret C. Ashworth, Fred G. Attebury, Daniel E. Behmer, James Boyer, Asa J. Brown, John S. Camp, Kenneth A. Hanninen, Annamarie Hayes, Otto A. Jiskra, Bette H. LaChapelle, Stella S. F. Liu, David H. Makinson, John T. Norman, Jr., Arthur R. Park, Richard M. Parres, James H. Quina, Joseph Sales, Sr., Jacqueline Tilles

ASSISTANT PROFESSORS

Rudi Alec, John D. Bies, James H. Blake, Sharon W. Elliott, Frank Heger, Gwendolyn Y. Hogue, Tommie U. Johnson, Loretta B. Jones, Ruth E. Moline, Rita C. Richey, Edward Walker, Jr., Paula Wood

INSTRUCTORS

Cherrie A. Farnette, Mary L. Gendernalik, Ophelia S. Harvey, Elizabeth A. Huff, Delores V. Leonard, Barbara J. McDonald, Shirley J. McRae, Keith E. Myers, Barbara J. Rennie, Beatrice Rogowski, Judy L. Smarr, Laura A. Smith, David K. Wallace, Marshall Zumberg

RESEARCH ASSOCIATE

Thomas M. Buescher

RESEARCH ASSISTANTS

Tommie Evans, Francisco Gonzalez, Barbara Vance

PURPOSES

The Division of Teacher Education focuses upon the development of competence in instruction and the improvement of curriculum at all levels and in many kinds of educational institutions. Pre-service, in-service, and instructional leadership teacher education programs are:

1. directed towards identifiable abilities in teaching, not only basic skills but complex processes in inquiry and valuing related to the best of modern knowledge;
2. field-oriented through continual interrelation of studies and practicums in differing socio-economic and ethnic communities;
3. cooperatively developed with those in the schools and their communities, the faculty and students of the College of Education, and those in the University at large;
4. arranged for a clinical approach to the study of teaching in school settings fostering innovation and curricular improvement;
5. humanely oriented, fostering personal growth and interaction, and the participation of all, regardless of age, sex, racial or ethnic origin, in the opportunities of education;
6. planned for interdisciplinary study in the liberal and pedagogical disciplines to meet educational problems through inquiry and the use of theory; and
7. built upon the recognition of the influence of the culture of the school and the teacher's role in decision making.

The Division offers programs for a wide range of professional roles:

1. pre-service preparation at pre-school, elementary, special education, and the secondary levels in all areas of school curriculum;
2. in-service, improving the competence of teachers — pre-school, elementary, special education, secondary, and community college in all levels of school curriculum; and offering opportunities of developing new abilities for particular school settings and changing educational needs;
3. instructional leadership and specialized responsibilities;
4. college and university teachers and researchers in the field of teacher education.

Structure

The faculty of the Teacher Education Division has been organized into four working groups or panels: Art Education, Interdisciplinary Teacher Education, Special Education, and Vocational and Applied Arts Education. Each panel is responsible for staffing specific undergraduate and graduate programs. See the following pages for the curriculum offerings of each panel.

UNDERGRADUATE PROGRAMS

Within the Division of Teacher Education

Programs leading to a bachelor's degree and a Michigan Provisional Certificate are administered by the Teacher Education Panels as follows:

Art Education
 Interdisciplinary Teacher Education
 Elementary Education
 Elementary Science Education
 Secondary English Education
 Secondary Foreign Language Education
 Secondary Mathematics Education
 Secondary Science Education
 Secondary Social Studies Education
 Secondary Speech Education
 Special Education
 Vocational and Applied Arts Education
 Business Education
 Distributive Education
 Family Life Education
 Industrial Education

Post-degree programs are also available to those who wish to qualify for elementary or secondary certification in the above named areas but who do not wish to enter a Master of Arts in Teaching degree program.

Elementary education students who desire to complete the requirements for Nursery School Approval should consult an adviser in Room 212, Education Building.

The Michigan Provisional Teaching Certificate does not include Nursery School Approval. The College of Education offers a plan whereby a transcript can indicate "Nursery School Approval."

Elementary or Secondary majors who desire to complete the requirements for the Bilingual/Bicultural Endorsement in Spanish, Arabic, Chaldean or Korean, should consult an adviser in Room 211 or 212 Education Building.

Elementary or Secondary majors who wish to include a Library Science minor in their certification program should consult an adviser in Room 315 Kresge Library.

Graduation Requirements

Students completing a program leading to a Bachelor of Science degree and Michigan Provisional Certificate must meet the following graduation requirements:

1. Completion of at least 186 credits.
2. Sixty credits in general education.
3. Completion of majors and minors appropriate to the level of the certificate.
4. Completion of the appropriate professional education sequence.
5. Minimum grade point average of 2.0.
6. Three credits in physical education.
7. Three credits in hygiene.
8. Completion of the University requirement for American government.

Students completing a program leading to the Bachelor of Arts degree and Michigan Provisional Certificate must complete the above graduation requirements and must have at least sixteen credits in a foreign language.

TEACHING CERTIFICATES

One of the characteristics of present day education is the specialization of teaching particularly at the secondary school and college levels and, to some extent, in the elementary school. This specialization is related not only to the subject-matter fields but also to the age groups of school children. The Michigan Certification Code provides for specialization in either the elementary or the secondary school areas by authorizing state certification for teaching on those two levels. Thus, a person who has kindergarten through grade nine endorsement is not legally qualified to teach in the secondary schools above grade nine, and a person with grades seven through twelve endorsement is not legally qualified to teach below grade seven. An exception is made in certain fields such as art, special education, family life education, health and physical education, industrial education, school library education, and music education, where the holder of a provisional certificate is qualified to teach his major subject in all grades, and, if indicated by his certificate, other subjects in other grades.

The certification code recognizes subject-matter specialization by requiring that the candidate for a teacher's certificate present concentrations of credits called majors and minors. The secondary school teacher must have a major and a minor teaching field, and the elementary school teacher must have either a major and a minor or three minor teaching fields.

All majors and minors must be in subject-matter fields appropriate to teaching at the level for which certification is to be recommended.

Certification Requirements

Michigan State Teachers' Certificates are granted by the Michigan State Board of Education upon the recommendation of the College of Education. Initial certificates are provisional for a six-year period and may become continuing certificates after three years of successful teaching experience and the completion of additional college work. Both the teaching experience and the additional hours must be completed after the issue date of the provisional certificate. Continuing certificates lapse if the holder does not engage in teaching for a period of five consecutive years or more. Certificates will indicate in what grades and subjects the holder is eligible to teach. In certain specified nonacademic fields, however, the holder of a provisional certificate is eligible to teach his major subject in all grades from the kindergarten through the twelfth. The qualifications which the College requires for recommendation for the certification are summarized below.

Provisional Certificates

Teaching certificates as listed below are granted with the bachelor's degree upon the completion of the four-year course.¹ They are also granted to students who hold a bachelor's or master's degree upon completion of a specified professional sequence, and to holders of either of the provisional certificates listed below who wish to qualify for the other.

¹ In exceptional circumstances, the degree may be granted without the teachers certificate if the student meets all degree requirements but is unable to meet all requirements for the certificate.

Elementary Provisional — Endorsement for Kindergarten through Grade Nine²

1. The candidate must have graduated with a bachelor's degree from an approved or accredited teacher-education institution.
2. The academic background must include one major (may be a group major) and one minor, or three minors. (Two of the three minors must be in subjects or subject fields taught in the elementary grades.) A subject major is defined as forty-five credits and a group major as fifty-four credits. A subject minor is thirty credits, and a group minor is thirty-six credits.
3. Completion of a professional education sequence is required.

Secondary Provisional — Endorsement for Grades Seven through Twelve

1. The candidate must have graduated with a bachelor's degree from an approved or accredited teacher-education institution.
2. The academic background must include one major (may be a group major) and one minor (may be a group minor) in subjects or subject fields in which the applicant expects to teach. A subject major is defined as forty-five credits and a group major as fifty-four credits. A subject minor is thirty credits, and a group minor is thirty-six credits.
3. Completion of a professional education sequence is required.

Certificate Conversion

Holders of one level of certificate who wish to convert to another level (i.e., elementary to secondary or vice versa) must consult a counselor in the Division of Academic Services, 489 Education Building.

Certification for Post-Baccalaureate Students

A college graduate holding the bachelor's or master's degree may qualify for a teaching certificate by completing a Master of Arts in Teaching degree program or a Master of Science in Library Science degree and certification program, or by completing a recognized post-degree program. See page 65 for general requirements for the Master of Arts in Teaching degree. The student may need to supplement his previous degree work in order to satisfy major and minor provisions of the Michigan certification code.

² The candidate for the elementary provisional certificate may be recommended for nursery school approval upon completion of designated requirements including student teaching contacts at Wayne State University Nursery School in the Jeffries Homes and other selected sites. Please consult with an adviser.

Continuing Certificates

Michigan Continuing Certificates are mandatory for those who qualified for a provisional certificate on or after July 1, 1970. The State Board of Education provides the following two methods by which the continuing certificates can be granted:

Twenty-Seven Hour Continuing Certificate

For holders of provisional certificates who have taught successfully for three years after the issue date of their provisional certificate and have completed twenty-seven quarter credits in a planned course of study after the issue date of their provisional certificate or have a master's degree.¹

Forty-Five Hour Continuing Certificate

For information regarding the Forty-five Hour Continuing Certificate, please consult with the Certification Officer, 469 Education Building.

The additional required credit, as well as the requisite teaching experience, must follow the date of issue of the original provisional certificate.² The teaching experience of holders of the elementary certificate must be in the elementary school grades (K-9); the teaching experience of holders of the secondary certificate must be in secondary school grades (7-12).³

Continuing certification with vocational endorsement requires a planned program. *Students should consult a vocational and applied arts education adviser* on certification for an approved program leading to continuing certification with a vocation endorsement.

Bilingual/Bicultural Endorsement

The Bilingual/Bicultural Endorsement certifies a teacher who is qualified to teach classes of bilingual children. Students at Wayne State University may earn this endorsement in Spanish, Arabic, Chaldean, or Korean. Undergraduates complete a 36 credit minor for the endorsement: 28 credits of coursework and an 8 credit field placement. Graduate students complete a 28 credit Planned Program, which may, if desired, be included in an M.Ed. program. Further information or requirements for this endorsement may be obtained in Room 211 or 212 Education Building.

Middle School Endorsement

Middle School Endorsement is a grade 5 through 9 endorsement for teachers holding certificates that are K-8 (pre-1970 Michigan Elementary) or 7-12 (Michigan Secondary). The endorsement requires 27 credits earned *after* the granting of the Provisional Certificate, and courses used in an M.Ed. program may also be used toward the endorsement. Students should consult a counselor in Room 489 Education Building for further information on middle school endorsement.

STUDENT TEACHING

Application

Each student must make application for student teaching *in person* during the appropriate application period. The date a completed application form is submitted to the Student Teaching Office will determine the quarter student teaching will take place.

Student teaching application periods are as follows:

Fall quarter the preceding December-February
Winter quarter the preceding April-July
Spring quarter the preceding October-November

Prerequisites for Student Teaching Placement

1. Full admission to the College of Education must be accomplished before application for student teaching can be accepted.
2. Completion at Wayne State University of not less than eight credits in course work authorized by the student's curriculum area adviser.
3. Adequate work in the teaching major and minor(s) as defined by the student's curriculum area in the College of Education.
4. Satisfactory completion of appropriate pre-student teaching courses and appropriate methods courses as outlined by the student's adviser.
5. Satisfactory health record and tuberculosis test within six months before assignment begins.
6. Satisfactory rating on the Teacher Education Division's Writing Competency Examination.
7. Student's Wayne State University honor point average must be 2.0 or higher at the time of application for student teaching.

Procedures for Student Teaching Application

1. Confer with adviser to determine eligibility for student teaching and obtain written approval which is to be submitted with application forms.
2. Complete application forms provided by the Student Teaching Office, 248 Education Building, during appropriate application period.

¹ For a student who is admitted to a program leading to a master's degree, the first twenty-seven credits are considered a planned program. Students not seeking a master's degree should consult with a counselor in 489 Education Building regarding an appropriate planned course of study.

² W.S.U. students completing degree and certificate programs may not apply graduate credit taken under the Senior Rule toward a continuing certificate.

³ In cases where the experience requirement has not been met, it is possible to secure a three-year renewal of a provisional certificate if the holder has completed fifteen credits of college work since the date of issue.

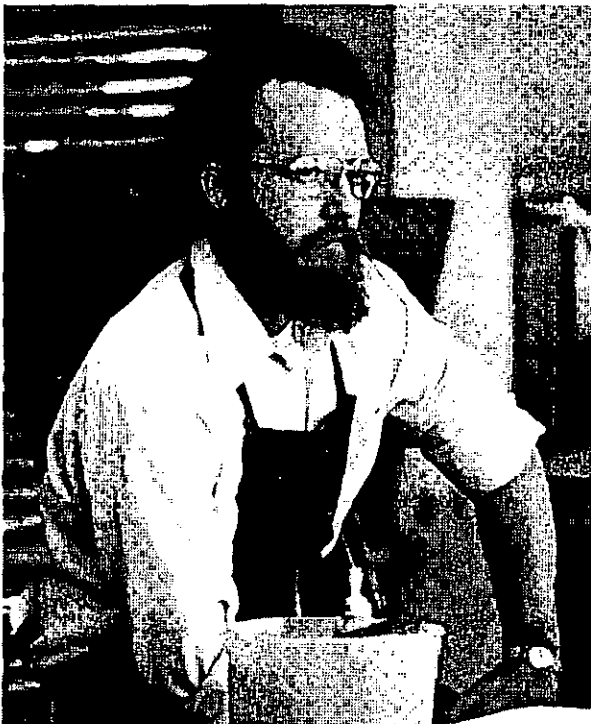
3. Complete health examination and tuberculosis test at University Health Service, fifth floor, Mackenzie Hall.

GENERAL DIVISION OFFERINGS¹

Undergraduate and Graduate (7000 level and above for graduate credit only)

	<i>credits</i>
TED 3016..... Directed Study	2-8
TED 4018..... Student Teaching and Seminar—Elementary Schools	2-16
TED 4019..... Student Teaching and Seminar—Secondary Schools	2-16
TED 5029..... Directed Teaching for In-Service Teachers.....	4-16
TED 5032..... Field Experiences for In-Service Teachers.....	4-12
TED 6010..... Field Studies in Education	2-12
TED 6014..... Local School Curriculum-Planning	2-8
TED 7010..... Field Study	2-8
TED 7016..... Research and Directed Study	2-8
TED 7017..... Introductory Master's Seminar	4
TED 7019..... Terminal Master's Seminar and Essay or Project..	2-4
TED 7902..... Internship and Seminar	2-16
TED 8017..... Advanced Seminar	2-4
TED 8019..... Master's Thesis Research and Seminar	2-12
TED 8851..... Theory and Process of Teaching	4
TED 8852..... Advanced Practicum	4-12
TED 8927..... Research Seminar: Curriculum Improvement	4
TED 8928..... Research Seminar: The Education of Teachers	4
TED 8929..... Advanced Clinic in the Analysis of Teaching.....	2-6
TED 9016..... Research and Directed Study	2-8
TED 9017..... Doctoral Orientation Seminar	4
TED 9018..... Doctoral Thesis Seminar	3-9
TED 9019..... Doctoral Dissertation Research and Direction.....	1-16

¹ For an explanation of the College of Education numbering system see page 662.



ART EDUCATION

Students in Art Education are initially admitted to the program as freshmen.

Part of the admission requirements to *senior college* is acceptance by a departmental jury of a portfolio of the student's art work. Consult advisers, 163 Community Arts Building, for more specific details relative to the portfolio and jurying schedule.

The four-year curriculum is as follows:

First Year		
<i>First Quarter</i>	<i>Second Quarter</i>	<i>Third Quarter</i>
S S 0191 ¹ ... 5	S S 0192 ¹ ... 5	Gen. Ed. Elective ... 4
Art History ... 4	ART 0102 ... 4	English Elective (0200 level) ... 4
ART 0101 ... 4	TED 1111 ... 4	ART 0131 ... 4
Gen. Ed. Elective ² ... 3	Phys. Ed. Elective ... 1	TED 1118 ... 4
	ENG 0150 ... 4	
Second Year		
Gen. Ed. Electives ² ... 7	SPH 0200 ... 4	PSY 0198 ... 4
ART 0103 ... 4	ART 0132 ... 4	HEA 0281 ... 3
TED 2113 ... 4	TED 2111 ... 4	TED 2114 ... 4
Phys. Ed. Elective ... 1	Gen. Ed. Elective ² ... 3	Gen. Ed. Elective ² ... 4
	Phys. Ed. Elective ... 1	
Third Year		
TED 4111 ... 4	Art History ... 4	Art History ... 4
TED 5123 ... 4	TED 5121, 5119, or 5128 ... 4	TED 5127 ... 4
Gen. Ed. Elective ² ... 8	Gen. Ed. Elective ² ... 8	TBF 3731 ... 4
		Electives ... 4
Fourth Year		
TED 4018 ... 8	TED 4019 ... 8	TBF 3601 ... 4
TED 5117 ... 4	Elective ... 4	Gen. Ed. Elective ² ... 4
Elective ... 4	Gen. Ed. Elective ² ... 3	Elective ... 4

Offerings—Art Education

	<i>credits</i>
*TED 1111..... Foundations of Art Education in the Third Dimension	4
*TED 1118..... Foundations of Graphic Art Education	4
*TED 2111..... Elementary Art Teaching Laboratory	4
*TED 2113..... Visual Communication	4
*TED 2114..... Design in Wood	4
*TED 3111..... Secondary Art Teaching Laboratory	4

¹ Political Science 0101 or 12 credits of American History may be substituted for Social Science 0191 and 0192.

² General education electives and unspecified electives may be used for development of subject matter or method-content minor. Unspecified electives may be applied to the major field as well as the minor field.

* A course materials fee of \$10.00 is assessed for this course.

*TED 3113	Crafts for Occupational Therapy and Special Education	4
TED 4111	Curriculum Seminar	4
*TED 5110	Art for Classroom Teachers I	2-4
*TED 5111	Art for Classroom Teachers II	2-4
*TED 5113	Art for Special Education Teachers	4
TED 5114	Contemporary Trends—Fine Arts	4
TED 5115	Contemporary Trends—Applied Arts	4
*TED 5116	Design in Wood	4
*TED 5117	Design in Fibers	4
*TED 5118	Graphic Art Education	4
*TED 5119	Light, Sound, Space and Motion	4
*TED 5121	Puppetry and Related Arts	4
*TED 5123	Modeling and Pottery—Introduction	4
*TED 5125	Comprehensive Crafts	4
*TED 5127	Design in Metal	4
*TED 5128	Printmaking	4
*TED 5129	Visual Communications—Advanced	4
*TED 6110	Art and Science in Education	4-6
TED 6111	Curriculum—Problems and Design	4
*TED 6117	Design in Fibers—Advanced	4
*TED 6120	Light, Sound, Space and Motion—Advanced	4
*TED 6121	Puppetry and Related Arts—Advanced	4
*TED 6123	Modeling and Pottery—Advanced	4
*TED 6128	Printmaking—Advanced	4
*TED 7111	Advanced Graduate Problems	4-12

INTERDISCIPLINARY TEACHER EDUCATION

The faculty of Interdisciplinary Teacher Education represents the various disciplines and curriculum areas listed on page 83. In the undergraduate pre-service program, faculty and personnel from the school districts in which field experiences take place are organized into teams. Upon admission to the program students are assigned to groups, each under the direction of a faculty team, and normally will remain within the same group and team throughout their professional preparation.

The programs offered are interdisciplinary in nature and are developed cooperatively by the faculty and school educators. The professional sequence is primarily field based (students will have laboratory experiences in both Detroit and suburban schools) and is being developed on a competency based design. Student participation in the development and implementation of these programs, particularly in the professional sequence, is encouraged. Students should consult the teacher education advising office, 212 Education Building, for information about the quarters in which those with certain majors may begin the professional sequence (TED 3355, 3356, 3357). For those students who can not attend during the day a late afternoon-evening program is available. Students may enter this program only in the fall quarter. Such enrollment must be approved by the Division Screening Committee.

The general requirements for undergraduate degrees and provisional certification are described in a preceding section of this bulletin. Consult faculty for specific requirements in Interdisciplinary Teacher Education.

* A course materials fee of \$10.00 is assessed for this course.

The minimal professional sequence in these programs consists of the following courses:

	<i>credits</i>	
TED 3355	Professional Education: Theory and Practice I	10
TED 3356	Professional Education: Theory and Practice II	10
TED 3357	Professional Education: Theory and Practice III	10
TED 4355	Internship and Seminar I	16

Additional courses are available to students for whom it is determined further study or field experience is needed or for those students who desire to raise their level of competency.

General Offerings—Interdisciplinary Teacher Education

*Undergraduate and Graduate (7000 level and above
for graduate credit only)*

	<i>credits</i>	
TED 1009	Practicum for School Paraprofessionals I	1-8
TED 1010	Multi-Causality Career Development	3-18
TED 2009	Practicum for School Paraprofessionals II	1-8
TED 3015	Education and Intergroup Problems in Urban Society	4
TED 3091	The Parent-Teacher Movement	2
TED 3355	Professional Education: Theory and Practice I	6-10
TED 3356	Professional Education: Theory and Practice II	6-10
TED 3357	Professional Education: Theory and Practice III	6-10
TED 3358	Professional Education: Theory and Practice IV	2-12
TED 3359	Professional Education: Theory and Practice V	2-12
TED 4010	Education and the Black Child	4
TED 4020	Black Education: An Historical Perspective	4
TED 4355	Internship and Seminar I	8-16
TED 4356	Internship and Seminar II	2-16
TED 4357	Professional Education: Theory and Practice VI	2-16
TED 5013	Survey of Public Education	3-4
TED 5014	Education Workshop	4
TED 5015	Analysis of Teaching	4
TED 5017	Using the Newspaper for Learning	3-6
TED 5018	Workshop in Intergroup Relations	3-9
TED 5020	Laboratory Workshop in Human Interaction	3-9
TED 5053	Educational Facilities of Henry Ford Museum and Greenfield Village	3-4
TED 5074	(D E 5274) Problems in Driver Education and Traffic Safety	4
TED 5075	(D E 5275) Seminar in Driver Education and Traffic Safety	4
TED 5093	(H E 5236) Methods and Materials of Instruction— Safety Education	3
TED 5094	(D E 5273) Teaching Driver Education and Traffic Safety	4
TED 5329	Field Study and Seminar in Teaching	4
TED 5925	Teaching the Emerging Adolescent in Middle School	4
TED 5926	Theory and Practice of Middle School Teaching	2-6
TED 6002	Computer Applications in Teaching	4
TED 6016	Communication, Popular Culture and the Curriculum	3-6

TED 6055	Multidisciplinary Methods and Materials for Teaching the Disadvantaged	3-12
TED 6504	Core Curriculum Methods and Materials	3-9
TED 6926	Teaching Internship and Colloquia II	2-16
TED 6927	Teaching Internship and Colloquia III	8-16
TED 7001	Field Study in Computer Applications in Teaching	4
TED 7015	Cooperative Planning in the Classroom	3-6
TED 7904	Role of the Team Leader	2-4
TED 7921	Advanced Theory and Practice in Teacher Education	8-16
TED 8011	Supervision of Student Teachers	4

Offerings—Elementary and Early Childhood Education

Undergraduate and Graduate (7000 level and above for graduate credit only)

		<i>credits</i>
*TED 1001	Preschool: Goals and Practices I	3-4
*TED 1002	New Educational Roles	3-4
*TED 1003	Preschool Skills and Practice: Music, Art, Science, Language Development	3
*TED 1004	Classroom Management	3-4
*TED 1005	Community Contacts: Working with Families in Urban Settings	3-4
*TED 1006	Audio Visual Techniques for the Paraprofessional	3-4
*TED 1007	Practicum in Preschool and Parent Education	2-6
TED 3311	Early Childhood Education	4
TED 3315	Methods and Materials of Instruction—Elementary School Mathematics	4
TED 3317	Reading and Language Arts	4
TED 3321	Literature for Children (L S 3498)	4
TED 3561	Science in the Elementary Schools	4
TED 4316	Social Studies in the Elementary Schools	4
*TED 5001	Preschool: Goals and Practices	3-4
*TED 5002	Educational Paraprofessionals: New Careers in Education	3-4
TED 5203	(MED 0553) Music Education for General Elementary School Teachers	4
TED 5311	Seminar in Early Childhood Education	3-4
TED 5313	Creative Teaching in the Elementary School	4
TED 5314	Urban Resources for Children's Social Education	3-4
TED 5315	Workshop—Creative Arts for Today's Children	6
TED 5316	Social Studies Curriculum for Elementary Schools	4
TED 5317	Language Arts	4
TED 5318	Teaching of Reading	4
TED 5319	Seminar in Adult Relationship in the Preschool (FAC 0586)	3
TED 5321	Modern Languages in the Elementary School	4-6
TED 5323	The Art of Storytelling (L S 5498)	4
TED 5325	Teaching of Elementary School Mathematics	4
TED 5326	Survey of Recent Literature for Children (L S 5518)	4
TED 5330	Planning and Implementation of Nursery School Curriculum	3
TED 5338	Reading Instruction in Early Childhood Education	4
TED 5526	(MAT 0536) Mathematics for Elementary School Teachers I	4
TED 5527	(MAT 0537) Mathematics for Elementary School Teachers II	4
TED 5535	(L S 5493) History of Children's Literature	4
TED 5561	Science Experiences in the Elementary Curriculum	4
TED 5563	Professional Course—Biological Sciences in the Elementary School	4
TED 5564	Professional Course—Physical Sciences in the Elementary School	4

TED 5567	Field Course in Natural Science I	4
TED 5568	Field Course in Natural Science II	4
TED 6144	Family Life Education in Elementary School	3
TED 6313	Remedial Instruction in the Basic School Subjects	4
TED 6314	Analysis, Selection, and Use of Literature for Children (L S 6514)	4
TED 6561	Curriculum Planning in Elementary and Secondary School Science	3-8
TED 6562	Recent Advances in the Teaching of Science in the Elementary School	4
TED 7311	Problems in Early Childhood Education	4
TED 7312	Functions of Literature for Children in the Elementary School Curriculum (L S 7511)	4
TED 7326	Social Studies Developments	1-12
TED 7327	Current Developments in Elementary Education	4-12
TED 8316	Applied Linguistics in Elementary Education	4
TED 8564	Role of Science in General Education: K-12	4
TED 8574	Social Studies Program in Grades K-12	4

Offerings—Mathematics Education

Undergraduate and Graduate (7000 level and above for graduate credit only)

		<i>credits</i>
TED 3315	Methods and Materials of Instruction—Elementary School Mathematics	4
TED 5325	Teaching of Elementary School Mathematics	4
TED 5521	Methods and Materials of Instruction—Secondary School Mathematics	4
TED 5528	(MAT 0548) Mathematics for Junior High School Teachers I	4
TED 5529	(MAT 0549) Mathematics for Junior High School Teachers II	4
TED 6002	Computer Applications in Teaching	4
TED 6523	Teaching Mathematics in Middle Schools	4
TED 6524	Teaching Mathematics in the Junior High School	4
TED 6525	Field and Laboratory Work in Secondary Mathematics	4
TED 6526	Creative Approaches to Mathematics Education	2-8
TED 6527	Seminar I	2
TED 6528	Seminar II	2
TED 6529	Seminar and Project III	4
TED 7001	Field Study in Computer Applications in Teaching	4
TED 7521	Advanced Studies in Teaching Secondary Mathematics I	4
TED 8521	Advanced Studies in Teaching Secondary Mathematics II	4

Offerings—Multi-Lingual/Multi-Cultural Education

(Foreign Language Education and Bilingual/Bicultural Endorsement)

Undergraduate and Graduate (7000 level and above for graduate credit only)

		<i>credits</i>
TED 5321	Modern Languages in the Elementary School	4-6
TED 5553	Introduction to Modern Languages in Secondary Schools	4
TED 5554	Assessment and Issues in Modern Language Curriculum	4-6

* Information is available on the Head Start program in Room 212, Education Building.

TED 6554	Workshop in Multi-Media Teaching of Language	3-6
TED 6555	Studies in Foreign Language Teaching	2-12
TED 6556	Bilingual Methods I	4
TED 6557	Bilingual Methods II	4
TED 6558	Culture as the Basis of Language Teaching	3-6
TED 6559	Experiences in Language Education	6
TED 6925	Internship in Bilingual Education	6-16
TED 7552	Special Problems in Foreign Language Teaching	4-6
TED 7553	Linguistics in Foreign Language Classroom	3-6
TED 7555	Advanced Workshop in Modern Foreign Language Teaching	3-6

Offerings — Reading (Elementary and Secondary)

Undergraduate and Graduate (7000 level and above for graduate credit only)

	<i>credits</i>	
TED 5318	Teaching of Reading	4
TED 6314	Analysis, Selection, and Use of Literature for Children (L S 6514)	4
TED 6531	Language and Reading Programs in Middle Schools	4
TED 6532	Literature for Adolescents (L S 6512)	4
TED 6536	Analysis, Selection, and Use of Reading Materials for Adolescents	4
TED 6539	Black Culture in the Secondary English Curriculum	4
TED 6541	Foundations of Teaching Reading in Secondary Schools	4
TED 6542	Remedial Reading in Secondary Schools	4
TED 6543	Reading in the Content Areas	4
TED 7330	Consortium for Teachers of Reading	4
TED 7332	Reading in Early Childhood	4
TED 7333	Reading in Later Childhood	4
TED 7334	Reading Diagnosis and Instructional Planning I	4
TED 7335	Reading, Language, and the Learner	4
TED 7336	Organizing for Reading Instruction	4
*TED 7344	Reading Diagnosis and Instructional Planning II	4
TED 7345	Practicum in Reading Diagnosis and Instruction	4
TED 8332	Seminar: Survey of Research in Reading	4
TED 8333	Seminar: Research Development in Reading	4
TED 8336	Advanced Seminar in Organizing, Supervising, and Administering Reading Instruction	4

Offerings — Science Education

Undergraduate and Graduate (7000 level and above for graduate credit only)

	<i>credits</i>	
TED 3561	Science in the Elementary Schools	4
TED 5561	Science Experiences in the Elementary Classroom	4
TED 5563	Professional Course—Biological Sciences in the Elementary School	4
TED 5564	Professional Course—Physical Sciences in the Elementary School	4

* A course materials fee of \$10.00 is assessed for this course.

TED 5565	Horticulture for Students of Occupational Therapy	4
TED 5566	Methods and Materials of Instruction in Secondary School Science I	4
TED 5567	Field Course in Natural Science I	4
TED 5568	Field Course in Natural Science II	4
TED 5569	Methods and Materials of Instruction in Secondary School Science II	4
TED 6110	Art and Science in Education	4-6
TED 6561	Curriculum Planning in Elementary and Secondary School Science	3-8
TED 6563	Recent Advances in the Teaching of Science in the Junior High School	4
TED 6564	Recent Advances in the Teaching of Physical Science	4
TED 6565	Recent Advances in the Teaching of Biological Sciences	4
TED 8564	Role of Science in General Education: K-12	4
TED 8565	Recent Research in Curriculum Development and Instruction in Science	4

Offerings — Secondary English Education

Undergraduate and Graduate (7000 level and above for graduate credit only)

	<i>credits</i>	
TED 6531	Language and Reading Programs in Middle Schools	4
TED 6532	Literature for Adolescents (L S 6512)	3-6
TED 6534	Problems in Teaching Writing	3-6
TED 6535	Teaching Literature in Secondary Schools	4
TED 6536	Analysis, Selection, and Use of Reading Materials for Adolescents	4
TED 6537	Linguistics and Learning	3-6
TED 6539	Black Culture and the Secondary School English Curriculum	3-6
TED 6541	Foundations of Teaching Reading in Secondary Schools	4
TED 6542	Remedial Reading in Secondary Schools	4
TED 6543	Reading in the Content Areas	3-6
TED 7532	Special Problems in the Teaching of English	4-12
TED 8537	Advanced Seminar in English Education	3-12
TED 8538	Research Seminar in English Education	4-6

Offerings — Secondary Social Studies Education

Undergraduate and Graduate (7000 level and above for graduate credit only)

	<i>credits</i>	
TED 6571	Methods and Materials of Instruction in Secondary Social Studies	4
TED 6573	Social Studies Curriculum—New Perspectives	1-12
TED 7577	Instructional Processes in Secondary Social Studies	4
TED 7578	Organization of Learning Experiences in Secondary Social Studies	4
TED 8574	Social Studies Program in Grades K-12	4

Offerings — Secondary Speech Education

Undergraduate degree and certificate program only

	<i>credits</i>	
TED 4541	(SPH 0506) Issues and Methods in Secondary Speech Education	4

TED 5437	(SPH 0504) Communication Dynamics in the Black Community	4
TED 5541	(SPH 0606) Perspectives on Education Communication	2-4

SPECIAL EDUCATION CURRICULA

Programs in Special Education prepare teachers for work with all types of exceptional children, in settings from educational programs and day schools to residential institutions and diagnostic-clinical centers.

Endorsements and Certifications

Endorsement to teach in state-reimbursed Special Education programs in Michigan is based on recommendations by the college and given by the State Department of Education after specific requirements have been completed. Undergraduates may fulfill the requirements that apply to teachers of the mentally impaired, the visually impaired, the physically impaired, and the speech impaired (speech pathology majors must continue their studies at the Master's level before earning full state certification in their field). Students may also enter a program for the multiple impaired, which includes training across broad areas of exceptionality (learning impairments, developmental and behavioral disorders, physical impairments) and is based on on-going field experiences with multiply-impaired learners. On completion of this program, the student is eligible for State of Michigan endorsement in both mentally impaired and physically impaired with a major emphasis in teaching the multiply impaired.

Undergraduates in all areas except the speech impaired are advised and programmed by Dr. Retherford. Students majoring in speech disorders are advised by faculty of Communication Disorders and Sciences, 555 Manoojian.

Nursery School Approval

Students in Special Education who wish "Nursery School Approval" on their transcripts should consult the special education adviser, Dr. Retherford.

General Education Courses

Below are required general education courses for special education undergraduates, most of which should be completed prior to admission to the College of Education. Consult adviser on other courses to fulfill the general education requirement.

		credits
ENG 0150	Freshman Composition	4
ENG 0200	Level	4
SPH 0200	Effective Speech	4
TED 3321	Literature for Children	4
BIO 0103	Introductory Biology	5
HEA 0283	First Aid	3
H E 4230	Health of the School Child	3
PSY 0198	Introductory Psychology	4
MAT 0111	Math for Elementary School Teachers I	3
MAT 0112	Math for Elementary School Teachers II	3

MAT 0113	Math for Elementary School Teachers III	3
HUM 0485	Humanities and Education	4
	Physical Education	3

Specialization — Major Requirements in Special Education

Courses for the group major in undergraduate areas of special education are listed below. The group major in all areas must be a minimum of fifty-four quarter hours. Please consult Dr. Gwen Retherford concerning minor requirements.

Children With Physical Impairments

		credits
TED 4403	Special Education Foundations Readings I	1
TED 4404	Special Education Foundations Laboratory and Seminar I	3
TED 4405	Special Education Foundations Readings II	1
TED 4406	Special Education Foundations Laboratory and Seminar II	3
TED 4407	Special Education Foundations Readings III	1
TED 4408	Special Education Foundations Laboratory and Seminar III	3
TED 5110	Art for Classroom Teachers I	2-4
TED 5403	Education of Exceptional Children	4
TED 5404	Speech Improvement in the Classroom	3
TED 5413	Teaching Mentally Impaired Children	3
TED 5425	Techniques in Educating Children with Physical Impairments	4
TED 5426	Home, School, Hospital Education for Children with Physical Impairments	4
TBF 5741	Mental Hygiene and Its Relation to the Problems of Education	3-4
TBF 5831	Introduction to Psychological Testing	4
ELD 5761	Educational Technology	4
BIO 0187	Anatomy and Physiology	6
or		
PSY 0405	Physiological Psychology	4
	Electives	5-7

Mentally Impaired

		credits
TED 4403	Special Education Foundations Readings I	1
TED 4404	Special Education Foundations Laboratory and Seminar I	3
TED 4405	Special Education Foundations Readings II	1
TED 4406	Special Education Foundations Laboratory and Seminar II	3
TED 4407	Special Education Foundations Readings III	1
TED 4408	Special Education Foundations Laboratory and Seminar III	3
TED 5110	Art for Classroom Teachers I	2-4
TED 5403	Education of Exceptional Children	4
TED 5404	Speech Improvement in the Classroom	3
TED 5411	Basic Theories, Programs and Practices in Mental Retardation	4

TED 5413	Teaching Mentally Impaired Children	3
TED 5414	Teaching Trainable Impaired Children	3
TBF 5741	Mental Hygiene and Its Relation to the Problems of Education	3-4
TBF 6831	Introduction to Psychological Testing	4
ELD 5761	Educational Technology	4
BIO 0187	Anatomy and Physiology	6
or		
PSY 0405	Physiological Psychology	4
Electives		6-8

Visually Impaired

credits

TED 4403	Special Education Foundations Readings I	1
TED 4404	Special Education Foundations Laboratory and Seminar I	3
TED 4405	Special Education Foundations Readings II	1
TED 4406	Special Education Foundations Laboratory and Seminar II	3
TED 4407	Special Education Foundations Readings III	1
TED 4408	Special Education Foundations Laboratory and Seminar III	3
TED 5110	Art for Classroom Teachers I	2-4
TED 5403	Education of Exceptional Children	4
TED 5404	Speech Improvement in the Classroom	3
*TED 5405	Education of Visually Impaired Children	3
*TED 5420	Pathology of the Organs of Vision	4
*TED 5421	Teaching Partially-Seeing Children	3
*TED 5422	Braille Techniques and Practice I	2
*TED 5423	Teaching Blind Children	3
*TED 5424	Braille Techniques and Practice II	2
*TED 6420	Orientation and Mobility: Visually Impaired Children	3
TBF 5741	Mental Hygiene and Its Relation to the Problems of Education	3-4
ELD 5761	Educational Technology	4
BIO 0187	Anatomy and Physiology	6
or		
PSY 0405	Physiological Psychology	4
Electives		2

Speech Impaired (Communication Disorders and Sciences)

Consult an adviser in 555 Manoogian for detailed programming.

credits

TBF 6831	Introduction to Psychological Testing	4
TBF 5741	Mental Hygiene and Its Relation to Problems of Education	3-4
TED 5403	Education of Exceptional Children	4
TED 5430	Introduction to Speech Pathology	4-5
TED 5431	Clinical Methods in Speech Pathology	5
TED 5432	Phonetics	4
TED 5433	Anatomy and Physiology of the Speech Mechanism	4
TED 5434	Clinical Practice in Speech Pathology	2
TED 5436	Normal Language Acquisition and Usage	4
TED 5438	Neurologically Based Speech and Language Disorders	4

* These courses are offered only once per year.

TED 5440	Introduction to Audiology	4
TED 5441	Practicum in Audiology	2-4
TED 5451	Speech Reading and Auditory Training	3
TED 6430	Speech Pathology	4
TED 6432	Organization and Methods in Speech Pathology	4

Multiple Impaired

For specific coursework and necessary College prerequisites in this program, interested students should see the convener in special education, the Special Education Advising Office, or the area coordinator for the multiple impaired curriculum.

Deaf and Hearing Impaired

The sequence for the preparation of teachers of the Deaf and Hearing Impaired is temporarily suspended. Whenever coursework in this area is offered, students may take work upon the approval of the special education convener, the Special Education Advising Office, or the adviser of a graduate special education sequence.

Special Education Minor

A minor in special education may be obtained for students wishing to qualify to teach homemaking and family living in schools or classes for exceptional children. Consult with an adviser in Special Education for specific requirements.

Offerings — Special Education

Undergraduate and Graduate (7000 level and above for graduate credit only)

credits

TED 4403	Special Education Foundations Readings I	1
TED 4404	Special Education Foundations Laboratory and Seminar I	3
TED 4405	Special Education Foundations Readings II	1
TED 4406	Special Education Foundations Laboratory and Seminar II	3
TED 4407	Special Education Foundations Readings III	1
TED 4408	Special Education Foundations Laboratory and Seminar III	3
TED 5403	Education of Exceptional Children	4
TED 5404	Speech Improvement in the Classroom	3
TED 5405	Education of Visually Impaired Children	3
TED 5411	Basic Theories, Programs, and Practices in Mental Retardation	4
TED 5412	Learning Disabilities of Exceptional Children	4
TED 5413	Teaching Mentally Impaired Children	3
TED 5414	Teaching Trainable Impaired Children	3
TED 5420	Pathology of the Organs of Vision	4
TED 5421	Teaching Partially-Seeing Children	3
TED 5422	Braille Techniques and Practice I	2
TED 5423	Teaching Blind Children	3
TED 5424	Braille Techniques and Practice II	2
TED 5425	Techniques in Educating Children with Physical Impairments	4
TED 5426	Home, School, Hospital Education for Children with Physical Impairments	4
TED 5430	(SPH 0530) Introduction to Speech Pathology	4-5
TED 5431	(SPH 0531) Clinical Methods in Speech Pathology	5

TED 5432	(SPH 0508) Phonetics	4
TED 5433	(SPH 0509) Anatomy and Physiology of the Speech Mechanism	4
TED 5434	(SPH 0536) Clinical Practice in Speech Pathology	2
TED 5436	(SPH 0532) Normal Language Acquisition and Usage	4
TED 5437	(SPH 0504) Communications Dynamics in the Black Community	4
TED 5438	(SPH 0533) Neurologically-Based Speech and Language Disorders	4
TED 5439	(SPH 0539) Language Pathology: Etiology and Diagnosis	4
TED 5440	(SPH 0540) Introduction to Audiology (AUD 0540)	4
TED 5441	(SPH 0544) Practicum in Audiology (AUD 0544)	2-4
TED 5445	Observations in Deaf Education	2
TED 5446	Tutorial Experiences in Deaf Education	3
TED 5450	Introduction to Education of the Deaf	3
TED 5451	(SPH 0542) Speech Reading and Auditory Training (AUD 0542)	3
TED 5452	Speech and Language for the Deaf	5
TED 5453	Teaching the Deaf—Speech	3
TED 5454	Teaching the Deaf—Language	3
TED 5455	Teaching the Deaf—Speech Reading and Auditory Training	3
TED 5456	Teaching the Deaf—Academic School Subjects I	2
TED 5457	Teaching the Deaf—Academic School Subjects II	2
TED 6401	Problems in Special Education	2-8
TED 6402	Educating Intellectually Superior, Creative, and Talented Children	3
TED 6403	Education of the Disabled Student in the Secondary School	3
TED 6420	Orientation and Mobility: Visually Impaired Children	3
TED 6430	(SPH 0630) Speech Pathology	4
TED 6432	(SPH 0632) Organization and Methods in Speech Pathology	4
TED 6433	(SPH 0608) Advanced Phonetics	4
TED 6434	(SPH 0609) Electroacoustics of Speech	4
TED 6436	(SPH 0636) Advanced Clinical Practice in Speech Pathology	2-4
TED 6439	(SPH 0634) Speech Rehabilitation of the Laryngectomy	4
TED 6442	(SPH 0640) Anatomy of the Ear (AUD 0640)	4
TED 6452	Education of the Deaf—Diagnosis and Appraisal	3
TED 6453	Education of the Deaf—Teaching Aids	3
TED 6454	Education of the Deaf—Multiple Handicaps	3
TED 6455	Teaching Communication Skills to the Language Disordered (SPH 0638)	3
TED 7402	Psycho-Educational Information for Teachers of Emotionally Impaired Children	3-4
TED 7403	Psycho-Educational Management and Curricula for the Emotionally Impaired	3-4
TED 7404	Psycho-Educational Intervention and Acting Out Phenomenon	3-4
TED 7405	Seminar in the Emotionally Impaired	3-4
TED 7408	Practicum with the Emotionally Impaired or Socially Maladjusted	2-16
TED 7415	Educational Diagnosis and Treatment in Mental Retardation	4
TED 7427	Recent Trends in Educating Visually Impaired Children	3
TED 7430	(SPH 0736) Internship in Speech Pathology	2-4
TED 7431	(SPH 0738) Diagnosis of Speech and Language Problems	4
TED 7434	(SPH 0734) Dynamic Analogies	4
TED 7435	(SPH 0735) Advanced Anatomy and Physiology of the Speech Mechanism	4
TED 7436	(SPH 0730) Introduction to Behavior Modification in Speech Pathology	4

TED 7437	(SPH 0737) Special Research Projects in Communication Disorders and Sciences	4
TED 7439	(SPH 0739) Advanced Clinical Methods in Speech Pathology	4
TED 7446	Directed Study in Audiology	1-4
TED 8402	Practicum—Internship in Educating Exceptional Children	2-10
TED 8407	Teacher-Consultant of Exceptional Children	3-4
TED 8436	(SPH 0809) Research in Speech Science	4
TED 8437	(SPH 0839) Seminar in Speech and Language Pathology	4
TED 8438	(SPH 0838) Seminar in Speech Science	4
TED 8456	(SPH 0844) Research Seminar in Deafness (AUD 0844)	3-4
TED 8457	(SPH 0849) Advanced Seminar in Deafness	3-4
TED 9407	Advanced Seminar	3

VOCATIONAL AND APPLIED ARTS EDUCATION

Vocational and applied arts curricula are based on competencies necessary for the preparation and certification of teachers of business, distributive, family life, industrial education, and allied health. Coterminous programs leading to the bachelor's degree or the Master of Arts in Teaching degree and recommendation for a provisional teaching certificate are offered.

Applicants to the VAE teacher preparation programs are accepted *only for the Spring quarter with a March 1st deadline for submission of applications.*

Assessment of the background of applicants in content and in oral and written communication is made at the time of admission through competency tests or their equivalents. The College of Education Writing Competency Examination must be completed successfully prior to the election of the methods courses.

In addition to the regular admission procedures, each applicant must have a personal interview with a vocational and applied arts education adviser and complete a plan of work approved by the vocational and applied arts education coordinating committee.

With an approved plan of work, an adviser's signature is unnecessary on course elections at registration. Because of the developing nature of programs, curriculum changes will affect some requirements as specified on plans of work. The responsibility rests with the student to follow the approved plan; to follow modifications in course titles, numbers, or equivalencies; and to see an adviser when changes are required in the plan of work.

Michigan Certification and Vocational Endorsement

Secondary provisional certification with eligibility for vocational endorsement is required in all areas of VAE except industrial arts. To be eligible for vocational certification, an approved major and an approved minor and two years of verified, recent, and relevant work experience in all wage-earning occupations is required.

*A course materials fee of \$10.00 is assessed for this course.

Continuing certification with *vocational endorsement* requires a planned program. See a vocational and applied arts education adviser on certification for an approved program leading to continuing certification with a vocational endorsement.

Professional Education

Prior to beginning the professional sequence, vocational and applied arts education students are required to have more than half of the course work completed in their teaching major. An exception to this practice would be those students who are completing a major at the community college or completing the major by successful completion of the national competency examinations. These students must have the major completed prior to admission to the VAE program.

The goal of vocational and applied arts education is to develop a competency-based certification program. Consequently, to receive credit for any of the following courses the successful completion of a competency examination is required.

Students are required to complete the following professional education experiences in the sequence indicated.

- TED 5191, Practicum in Principles of Teaching Vocational and Career Educational Programs
- TED 5195, Foundations of Teaching and Learning
- Two specified methods courses in appropriate curriculum area
- TED 4192 or 7192, Teaching Internship: Secondary Schools
- TED 5193, Teaching Internship Seminar
- TBF 3601, Introduction to Philosophy of Education; TBF 6610, Field Studies in Philosophy of Education (to be elected concurrently with intern teaching)

Secondary school intern teaching in all curricula of vocational and applied arts education is scheduled for five full days per week for a public school semester. Fall semester (fall and winter quarters) usually begins the day after Labor day and terminates the latter part of January. Winter semester (winter and spring quarters) begins approximately February 1 and terminates the middle of June.

For those interested in teaching at the community college level, intern teaching can be arranged at the post-secondary level. The community college program does not terminate in certification or endorsement.

BUSINESS AND DISTRIBUTIVE EDUCATION

The requirements of the several programs of the curriculum area are detailed to students in their first advisement session, a prerequisite to making a plan of work. Schedules for general advisement are posted each term.

FAMILY LIFE EDUCATION

It is possible, within the undergraduate program, to qualify for both the general vocational endorsement and the wage-earning home economics endorsement. This option is possible by pursuing a minor in one of the vocational wage-earning services. It is also possible for a student to earn an occupational home economics major with an academic minor such as social studies.

Students planning to pursue this curriculum may enter the Department of Family and Consumer Resources, College of Liberal Arts, as freshmen or sophomores. It is recommended that the curriculum listed below be followed for the first two years. Students planning to earn an occupational endorsement should see a College of Education Family Life Education adviser prior to any course work at the university.

First Year		
Fall Quarter	Winter Quarter	Spring Quarter
SPH 0200 ... 4	ENG 0150 ... 4	English Elect.
FAC 0154 ... 4	FAC 0213 ... 2	0200 level ... 4
FAC 0241 ... 4	FAC 0180 ... 4	FAC 0221 ... 4
PHS 0191 ¹ ... 5	PHS 0192 ¹ ... 4	PHS 0193 ... 5
Phys. Ed. Elective ... 1	Phys. Ed. Elective ... 1	SS 0191 ... 5
Second Year		
SS 0192 ... 5	FAC 0254 ... 4	FAC 0171 ... 4
PSY 0198 ... 4	FAC 0503 ... 4	FAC 0311 ... 4
FAC 0260 ... 4	PSY 0330 ... 4	HEA 0281 ... 3
Elective ... 4	Major Elective 4	ART ... 4
		Phys. Ed. Elective ... 1

INDUSTRIAL EDUCATION

The industrial arts program prepares students to teach industrial arts at the junior and senior high school levels. To teach vocational education in secondary schools or community colleges, students pursue one of the vocational industrial options.

Teaching Majors

Industrial Arts

Group Major — a minimum of fifty-four credits is required. A group major in industrial arts is composed of laboratory experiences in five or more subject areas such as drafting, machine shop, welding, woodwork, auto, graphic arts, sheet metal, and fluid power. A student with a group major in industrial arts would be eligible upon certification to teach general industrial arts in the public schools, K-12 grades.

Vocational Industrial Education

Unit Major — a minimum of forty-five credits is required. A unit major in vocational industrial education is generally composed of a single subject in which the student has had great depth in experiences as compared to one with a major in industrial arts. Work experience in the subject in which he is specializing is required. A student with a major in vocational industrial education would be eligible to teach in secondary schools, area vocational schools, and community colleges.

¹ On consultation with adviser, students may substitute Biology 0103, 5 credits; Biology 0187, 6 credits; plus 1 credit to complete graduation requirements.

Planned programs are available to transfer certain technical courses from selected community colleges. These programs provide the student with a majority of his technical courses needed for a teaching major in industrial education. *The vocational and applied arts education staff must be consulted regarding these programs at cooperating community colleges prior to enrollment.* Subsequently, all arrangements must be approved by the VAE convener.

Woodworking, sheet materials, and multi-media courses must be taken at Wayne State University since they are not taught in community colleges. These required courses are TED 1171, 2171, and 3171.

Since most community colleges are on a semester calendar, students should plan to attend beginning in September or January. It is the responsibility of the student to make arrangements for attendance at the community college.

Offerings—Vocational and Applied Arts Education

Undergraduate and Graduate (7000 level and above for graduate credit only)

Courses are identified for each of the curriculum areas by the second and third digits in the course number.

Business Education (X13X)

	<i>credits</i>
TED 5131..... Business Education Principles and Practicum	3-4
TED 5133..... Practicum in Teaching Office Occupations	3-4
TED 5134..... Practicum in Teaching Typewriting	3-4
TED 6133..... Special Problems in Business Education	1-10
TED 6135..... Principles and Applications of Teaching Business Data Processing	2-10
TED 6136..... Field Studies in Business Education	2-12
TED 8136..... Honors Projects in Business Education	2-9

Distributive Education (X15X)

	<i>credits</i>
TED 5134..... Practicum in Teaching Typewriting	4
TED 5151..... Distributive Education Principles and Practicum	3-4
TED 5153..... Business Education Practicum— Distributive Occupations	3-4
TED 6153..... Special Problems in Distributive Education	1-10
TED 6155..... Principles and Applications of Teaching Business Data Processing	2-10
TED 6156..... Field Studies in Distributive Education	2-12
TED 8156..... Honors Project in Distributive Education	2-9

Family Life Education (X14X)

	<i>credits</i>
TED 5141..... Methods and Materials of Teaching Homemaking and Family Living	4
TED 5144..... Family Life Education Workshop or Seminar	2-16
TED 5145..... Home and Family Living Seminar	4
TED 5147..... Teaching Family Financial Management	4
TED 5148..... Child Development and Family Relationships	4
TED 6141..... Survey of Home Economics Related Occupational Courses	4
TED 6143..... Adult and Parent Education in Home and Family Living	3
TED 6144..... Family Life Education in Elementary School	3
TED 6145..... Secondary School Program in Family Living	4

TED 6148..... Homemaking Curricula	4
TED 6149..... Practicum in Homemaking and Family Life Education	3-12
TED 7144..... Evaluation in Homemaking and Family Life Education	4

Offerings—Industrial Education

Technical Content Courses (X17X)

	<i>credits</i>
*TED 1171..... Materials and Processes—Wood	4
*TED 2171..... Materials and Processes—Sheet Materials	4
*TED 3171..... Materials and Processes—Multi-Media	4
TED 5170..... Experiences for Technical Development	2-12
TED 6170..... Experiences for Technical Development	2-12
TED 6176..... Modern Industrial Processes	3

Professional Courses (X18X)

TED 5187..... Methods and Materials of Instruction I	4
TED 6187..... Methods and Materials of Instruction II	4
TED 7185..... Evaluation in Industrial Education	4
TED 8187..... Seminar in Industrial Education	4-8

General Offerings—Vocational and Applied Arts Education

Undergraduate and Graduate (7000 level and above for graduate credit only)

	<i>credits</i>
TED 4192..... Teaching Internship: Secondary Schools	2-18
TED 4196..... Directed Study	2-9
TED 5191..... Practicum in Principles of Teaching Vocational and Career Education Programs	4
TED 5193..... Teaching Internship Seminar	4
TED 5195..... Foundations of Teaching and Learning	4-8
TED 6191..... Planning for Vocational and Career Education	4
TED 6192..... Cooperative Education—Field Study	2-16
TED 6193..... Special Problems in Vocational Education	1-4
TED 6194..... Planning and Management of School Laboratories	4
TED 6195..... Planning and Organizing Instruction	4
TED 6196..... Objective Reference Evaluation in Vocational Education	4
TED 6197..... Field Study—The Current Economic Scene and Career Education	4
TED 6198..... Managing Vocational Instruction and Facilities	4
TED 6199..... Coordination of Cooperative Occupational Education	4
TED 7190..... Field Study in Career and Vocational Education Programs	2-9
TED 7192..... Teaching Internship: Secondary Schools	2-16
TED 7194..... Research	2-9
TED 7195..... Administrative and Supervisory Functions in Vocational Education	4
TED 7196..... Directed Study	2-12
TED 7197..... Introductory Master's Seminar	7
TED 7198..... Current Issues and Trends	4
TED 7199..... Terminal Master's Seminar and Essay or Project	4
TED 8195..... Curriculum Development Procedures	4
TED 8198..... Vocational Education in Community Colleges	4
TED 8199..... Terminal Master's Thesis Research and Seminar	2-12
TED 9196..... Research	2-12
TED 9199..... Doctoral Dissertation Research and Direction	1-16

* A course materials fee of \$10.00 is assessed for this course.

Credit by Examination

Credit in selected occupational areas may be earned through competency examinations. Consult the coordinator in your curriculum area for the examination schedule.

GRADUATE PROGRAMS

Within the Division of Teacher Education

Programs leading to the Master of Arts in Teaching and Master of Education degrees, the Education Specialist Certificate, and the Doctor of Education and Doctor of Philosophy degrees are offered under the guidance of the Staff of the Division of Teacher Education.

See preceding section on graduate degrees for information regarding areas of specialization and basic degree requirements. Consult appropriate divisional adviser for detailed information about areas of concentration.

MASTER'S DEGREES

Programs leading to a Master of Education degree are administered by the four Teacher Education Division panels as follows:

- I. Art Education
- II. Interdisciplinary Teacher Education
 - Bilingual/Bicultural Education — available in Spanish, Arabic, Chaldean, or Korean.
 - Elementary Education — also provides opportunity for emphasis in various fields within the degree program including early childhood education, language arts and reading, literature for children, mathematics education, science education and social studies education.
 - English Education (Secondary)
 - Foreign Language Education
 - Mathematics Education (Secondary)
 - Preschool and Parent Education
 - Reading (Elementary)
 - Reading (Secondary)
 - Science Education
 - Social Studies Education (Secondary).
- III. Special Education — also provides opportunity for emphasis within the degree program in teaching the mentally impaired, visually impaired, physically impaired, speech impaired, emotionally impaired, or learning impaired.
- IV. Vocational and Applied Arts Education
 - Business Education
 - Distributive Education
 - Family Life Education
 - Industrial Education

The Master of Arts in Teaching degree programs are administered by Teacher Education Division panels as follows:

- I. Interdisciplinary Teacher Education
 - Elementary Education
 - English Education (Secondary)
 - Foreign Language Education
 - Mathematics Education (Junior High)
 - Mathematics Education (Secondary)

Science Education
Social Studies Education (Secondary)

- II. Vocational and Applied Arts Education
 - Business Education
 - Distributive Education
 - Family Life Education
 - Industrial Education

Special Education

Students who have completed certificate and bachelor's degree requirements in non-special education areas and who wish to qualify for approval in an area of special education may take their initial preparation at the master's level.

Students who are certified teachers, approved in special education at the undergraduate level, may continue their preparation in other areas of specialization.

Initial certification (approval) in the program for the emotionally impaired is secured at the master's level. The curriculum prepares professionals for in-patient and out-patient clinical-hospital settings as special education teachers in public schools and as teacher-counselor/teacher-consultants with the emotionally impaired and socially maladjusted. For detailed information contact area advisers.

Initial certification (approval) in the program for the learning impaired is secured at the master's level. For detailed information, contact the area adviser.

Preparation programs for the mentally impaired, visually impaired, and physically impaired prepare specialists in classroom intervention, resource teachers, teacher counselors, program consultants, program directors, and college and university teachers. For detailed information contact area advisers.

A student who specializes in speech pathology (communication disorders and sciences) must complete the master's degree or its equivalent to be recommended for full certification by the State of Michigan as a school speech correctionist.

Graduate advisers are:

Children with physical impairments Retherford
Mentally impaired staff
Speech impaired (communication disorders and sciences) Leith, Dowling, Dreyer, Falk, McClung
Visually impaired (blind partially seeing) Hanninen
Emotionally impaired Brown, Coleman, Wood
Learning impaired Parres, Brown, Heger
Teacher counselors staff
College teaching in special education doctoral advisers

Vocational and Applied Arts Education

Vocational and applied arts education is committed to the implementation of competency-based graduate programs. Programs leading to the Master of Education degree provide opportunity for emphasis in various curriculum areas which include business education, distributive education, family life education, industrial education, allied health, and vocational education.

The Master of Arts in Teaching student is combining work for secondary provisional teaching credentials in vocational education with the requirements for a master's degree. This student elects the pre-service professional education sequence and the basic requirements of the master's program with the exception of TED 7197. They also select any additional courses as electives.

The Master of Education Degree program is divided into two parts:

- a) the 27 credit planned program for continuing general and vocational certification and endorsement,
- b) the 18 credits earned particularly for the master's degree.

The 27 credit sequence will include:

	<i>credits</i>
TED 7197.....Introductory Master's Seminar	7
TED 7198.....Current Issues and Trends	4
TED 6196.....Objective Referenced Evaluation in Vocational Education	4
TED 6195.....Planning and Organizing Instruction ¹	4
Courses in the core, cognate, or electives	8

The M.Ed. requirements (18 credits) are:

TED 7199.....Terminal Master's Seminar and Essay or Project..	4
Courses in the core, cognate, or electives ²	14

On admission to the VAE Master's program, the student must elect TED 7197 as one of the first two courses in the program. During that experience, a *Plan of Work* for the balance of the work is developed based on a needs assessment.

All applicants to the Master of Education and Master of Arts in Teaching degree programs offered in vocational and applied arts education must be interviewed by a curriculum adviser.

EDUCATION SPECIALIST CERTIFICATE

See preceding section for information regarding areas of specialization and general requirements.

DOCTORAL PROGRAMS

The Ed.D. and Ph.D. programs with a major in teacher education are designed to prepare professionals for teacher preparation positions in institutions of higher learning, education renewal centers, state and national education agencies, and intermediate and local school districts. The program is designed for those individuals who are committed to the educational renewal of urban America; whose career goals emphasize the development and improvement of teaching; who desire to prepare themselves for roles in pre-service and in-service teacher education; and who will serve as agents of change, creating and expanding the varied institutions and programs needed for the continuing education of teachers.

¹ The student may waive this course by successfully completing the exemption test. If this is done, a VAE elective will be elected instead.

² The student must elect a minimum of 6 credits in core and 8 credits in cognate.

An advanced program based on pure and applied research in instruction and curriculum, the doctoral programs in teacher education incorporate formal classroom instruction, independent study, and direct clinical experience in a variety of field settings. As such, it recognizes (1) the legitimacy of the emerging pattern of inter-institutional partnerships in teacher education at all levels, (2) the significance of the poly-racial and poly-cultural nature of the metropolitan society, and (3) the importance of the integration of theory, research, and practice as the basis for sound professional development.

Those interested in this program should obtain the divisional statement on the doctorate in teacher education and consult with divisional faculty for specific information.

The Ed.D. and Ph.D. program with a major in curriculum development and specialization in English education, mathematics education, science education, or social studies education are also offered by the Division. The program is intended for those whose career goals emphasize curricular development and improvement in these areas, either in schools or colleges of education. The programs include formal course work, independent study, research, and field work in curriculum development.

COURSES OF INSTRUCTION³

Teacher Education (TED)

*1001. Preschool: Goals and Practices I. Cr. 3-4.

Prereq: consent of instructor. An examination of the purposes of early childhood programs and the variety of approaches and activities associated with the Head Start concept. The course will be problem-solving in nature and will focus on the best available knowledge and practices being utilized in early childhood programs throughout the country.

*1002. New Educational Roles. Cr. 3-4.

Prereq: consent of instructor. For paraprofessionals and teachers in programs in Head Start. Examination of the new roles emerging with the growth of the team concept of staffing and the use of auxiliary personnel in the classroom. The working relationships involving paraprofessionals, teachers and parents and an analysis of new educational roles and interpersonal relationships of adults in the classroom. The implications for creating a climate of learning for children.

*1003. Preschool Skills and Practice: Music, Art, Science, Language Development. Cr. 3.

Prereq: consent of instructor. For paraprofessionals and teachers in early childhood programs. Examination of methods in early childhood education as it relates to basic early childhood curriculum.

*1004. Classroom Management. Cr. 3-4.

Prereq: consent of instructor. For paraprofessionals in Head Start programs. Delineation of performance goals of paraprofessionals in Head Start classrooms and identification by appropriate techniques in classroom management to fulfill these goals.

³ See page 661 for interpretation of numbering system, signs and abbreviations.

⁴ Information on Head Start Program available in Room 212, Education Building.

***1005. Community Contacts: Working with Families in Urban Settings. Cr. 3-4.**

Prereq: consent of instructor. For paraprofessionals and teachers in Head Start, and other early childhood programs. Relationships of programs and services within the community to study the dynamics of effectively working with families to improve the services for the child.

***1006. Audio Visual Techniques for the Paraprofessional. Cr. 3-4.**

Prereq: consent of instructor. For paraprofessionals in early childhood programs. Structured to develop skills, abilities, confidences, and competencies in areas of instructional technology needed by teacher aides working with pre-school children in the inner city schools and nurseries.

***1007. Practicum in Preschool and Parent Education. Cr. 2-6 (Max. 6).**

Prereq: consent of director. For paraprofessionals in Head Start and related programs. Offered for S and U grades only. Designed to give the student supervised experience in classroom and nursery school. Regular in-service training designed toward agency curriculum needs and practices.

1009. Practicum for School Paraprofessionals I. Cr. 1-8 (Max. 12).

Prereq: consent of instructor. For school paraprofessionals in a teacher education program. Offered for S and U grades only. Supervision of school paraprofessionals in classroom settings. Occasional seminars on paraprofessional concerns, such as working with children and with school personnel, classroom management.

1010. Multi-Causality Career Development. (10,24). Cr. 3-18.

Prereq: consent of instructor. Offered for S and U grades only. Examination of developmentally related factors, within an anthropological, psychological, and sociological context which contribute to the educational and vocational aspirations of the individual.

1111. Foundations of Art Education in the Third Dimension. Cr. 4.

Required for certification in art education and prior to student teaching. Exploration into crafts and sculptural forms and the interpretations of these toward art education goals in the schools.

1118. Foundations of Graphic Art Education. Cr. 4.

Required for certification in art education and prior to student teaching. Explorations into the foundations of thinking and working two-dimensionally. Development of perceptual insights for graphic expression and its use. Development of man from pre-school to adult in terms of the use of various graphic media.

1171. Materials and Processes — Wood. Cr. 4.

Development of products suitable for industrial arts programs involving hand and machine operations, forming, fastening and finishing.

2009. Practicum for School Paraprofessionals II. Cr. 1-8 (Max. 12).

Prereq: sophomore standing, consent of instructor. For school paraprofessionals in a teacher education program. Offered for S and U grades only. Supervision of school paraprofessionals in classroom settings. Occasional seminars continue exploration of topics studied in Teacher Education 1009.

2111. Elementary Art Teaching Laboratory. Cr. 4.

Prereq: TED 1111 and 1118 and sophomore standing. Required for certification in art education and prior to student teaching. Initial laboratory experiences directing children in art activities — planning, methods, teaching and evaluation.

* Information on Head Start Program available in Room 212, Education Building.

2113. Visual Communications. Cr. 4.

Required for certification in art education. Lettering, layout, and technical problems, emphasizing visual-verbal communication.

2114. Design in Wood. Cr. 4.

Required for certification in art education. Wood as a functional and expressive material.

2171. Materials and Processes — Sheet Materials. Cr. 4.

Development of products suitable for industrial arts programs involving lay-out, cutting, forming, joining, and finishing of various sheet materials.

3015. Education and Intergroup Problems in Urban Society. Cr. 4.

Prereq: admission on senior college level to teacher certification program; satisfactory health record and TB test within the last six months. Required of all students admitted to certificate programs, other than vocational and applied arts education or interdisciplinary teacher education. Analysis of selected problems in public education in the United States; field experiences in school and community settings with special reference to impact of urban intergroup problems on education; an examination of new community demands on the school, changing expectations of students, educators and citizens generally, and public education as an agency for social change.

3016. Directed Study. Cr. 2-8 (Max. 8).

Prereq: written consent of adviser.

3081. (DNC 3281) Creative Dance for Children. Cr. 2.

Required for dance minors. Varied approaches to creative dance experiences for children stressing the development of aesthetic and kinesthetic awareness.

3091. The Parent-Teacher Movement. Cr. 2.

Historical development of parent-teacher groups, organization and operational patterns and problems, activities and achievements. Local, state and national programs of parent-teacher cooperation.

3111. Secondary Art Teaching Laboratory. Cr. 4.

Prereq: TED 1111 and 1118 with sophomore standing or above. Alternate to TED 2111 requirement for certification in art education with consent of adviser. Required prior to student teaching. Laboratory experiences in directing junior high and high school students in specific art areas; i.e., figure drawing, sculpture, painting. Curriculum and lesson planning, methods, teaching, and evaluation.

3113. Crafts for Occupational Therapy and Special Education. Cr. 4.

Materials and processes adaptable for use in occupational therapy and special education.

3171. Materials and Processes — Multi-Media. Cr. 4.

Prereq: TED 1171 and 2171. Development of products suitable for industrial arts programs involving lay-out, cutting, forming, assembling, and finishing of materials appropriate for school laboratories.

3311. Early Childhood Education. Cr. 4.

Curriculum of early childhood education as related to growth, learning, and personality development of young children. Role of the teacher in program development, guidance, school-family relationships and inter-agency cooperation.

3315. Methods and Materials of Instruction — Elementary School Mathematics. Cr. 4.

Prereq: consent of adviser. Development of mathematical competence in classroom. Objectives, curriculum content, teaching strategies, evaluation of instructional materials, grades K-7.

3317. Reading and Language Arts. Cr. 4.

Prereq: consent of adviser. Development of the communication skills in the classroom; emphasis on reading, listening, oral and written composition, spelling, handwriting, speech.

3321. Literature for Children (L S 3498). Cr. 4.

Literature appropriate for use with children of pre-high school age. Methods of selection and utilization.

3355. Professional Education: Theory and Practice I. Cr. 6-10.

Prereq: admission to teacher certification program. Human growth and learning; structure, function, and purpose of educational institutions in society; methods and materials of instruction appropriate to elementary and secondary schools. On-campus classroom study combined with laboratory experiences in both Detroit and suburban schools.

3356. Professional Education: Theory and Practice II. Cr. 6-10.

Prereq: TED 3355. Continuation of Teacher Education 3355.

3357. Professional Education: Theory and Practice III. Cr. 6-10.

Prereq: TED 3356. Continuation of Teacher Education 3356.

3358. Professional Education: Theory and Practice IV. Cr. 2-12.

Prereq: consent of team leader. For students who need additional study in on-campus classroom and/or laboratory field experiences of the professional education sequence. Continuation of Teacher Education 3357.

3359. Professional Education: Theory and Practice V. Cr. 2-12.

Prereq: TED 3358. For students needing additional study or for those who desire to raise their level of competency. Continuation of Teacher Education 3358.

3561. Science in the Elementary Schools. Cr. 4.

Objectives and significant areas of study in science appropriate to the elementary school curriculum. Introduction to teaching resources including experiments, field trips, library materials, equipment, audio-visual resources.

4010. Education and the Black Child. Cr. 4.

Prereq: consent of adviser. New and relevant information concerning the past and present role of education and how it has affected the black child in American society. Examination of theoretical positions concerning the educational needs of black people. Current theories on black education.

4018. Student Teaching and Seminar — Elementary Schools. Cr. 2-16.

Prereq: admission to student teaching. Offered for S and U grades only.

4019. Student Teaching and Seminar — Secondary Schools. Cr. 2-16.

Prereq: admission to student teaching. Offered for S and U grades only.

4020. Black Education: An Historical Perspective. Cr. 4.

Prereq: consent of adviser. An historical and contemporary analysis of the black man's struggle to obtain a "real" education in America.

4030. (H E 4230) Health of the School Child. Cr. 3.

Prereq: H E 0281 or consent of instructor. Health status and problems of youth at various stages of growth and development; teacher's role in health protection and promotion.

4111. Curriculum Seminar. Cr. 4.

Prereq: TED 2111 or 3111; prereq. or coreq: TED 4018. Open only to art education majors; required for certification in art education. An analysis of various writings in, and related to, basic values for facilitating learning in art and curriculum construction, impact of urban problems on education. Observation, teaching methods, and independent study problems.

4192. Teaching Internship: Secondary Schools. Cr. 2-16.

Prereq: admission to intern teaching; coreq: TED 4193. Offered for S and U grades only. Intern teaching in secondary schools; integration of theory and practice.

4196. Directed Study. Cr. 2-9 (Max. 9).

Prereq: written consent of vocational and applied arts coordinating committee.

4316. Social Studies in the Elementary Schools I. Cr. 4.

Prereq: consent of adviser. Development of initial competence in teaching social studies. Objectives, curriculum content and organization, teaching strategies, instructional materials, and evaluation of learning.

4355. Internship and Seminar I. Cr. 8-16.

Prereq: admission to student teaching. Offered for S and U grades only. Directed teaching in schools at level for which students are preparing for certification. Seminars for discussion of educational issues.

4356. Internship and Seminar II. Cr. 2-16.

Prereq: TED 4355. Offered for S and U grades only. Directed teaching in schools at level for which students are preparing for certification. Seminars for discussion of educational issues.

4357. Professional Education: Theory and Practice VI. Cr. 2-16.

Prereq: TED 4355 and consent of instructor. For students needing additional study of methods and materials of instruction or deeper understanding of educational issues.

4403. Special Education Foundations Readings I. Cr. 1.

Offered for S and U grades only. First reading course in a twelve hour reading and laboratory seminar. Initial coursework leading eventually to competency in teaching a variety of types of moderately handicapped children.

4404. Special Education Foundations Laboratory and Seminar I. (1,2). Cr. 3.

Offered for S and U grades only. Demonstrate competency to perform tasks and the acquisition of knowledge as specified in performance objectives in special education: (a) pupil assessment, (b) setting objectives and (c) selecting delivery systems.

4405. Special Education Foundations Readings II. Cr. 1.

Offered for S and U grades only. Demonstrate acquisition of

knowledge from printed sources to fulfill performance objectives in special education professional background and knowledge, instructional evaluation and motivational and behavioral management.

4406. Special Education Foundations Laboratory and Seminar II. Cr. 3.

Offered for S and U grades only. Demonstrate competency to perform tasks and acquire knowledge as specified in performance objectives in special education in professional background knowledge, instructional evaluation and motivational and behavioral management.

4407. Special Education Foundations Readings III. Cr. 1.

Prereq: TED 4405 and 4406. Offered for S and U grades only. Demonstrate acquisition of knowledge from printed sources to fulfill performance objectives in special education personal relationships with other professionals, parents and students as well as matters related to professional ethics.

4408. Special Education Foundations Laboratory and Seminar III. Cr. 3.

Prereq: TED 4405 and 4406. Offered for S and U grades only. Demonstrate competency to perform tasks and acquire knowledge as specified in performance objectives in special education personal relationships with other professionals, parents and students as well as professional ethics.

4541. (SPH 6506) Issues and Methods in Secondary Speech Education. Cr. 4.

Prereq: 20 credits in speech or consent of instructor. Philosophy, pedagogical issues, curriculum and methods for teaching speech in secondary schools.

***5001. Preschool: Goals and Practices. Cr. 3-4.**

Prereq: consent of instructor. For pre-service and in-service teachers in early childhood programs. See Teacher Education 1001.

***5002. Educational Paraprofessionals: New Careers in Education. Cr. 3-4.**

Prereq: consent of adviser. An examination of two major innovative phenomena affecting school systems, i.e., the introduction of auxiliary personnel in the schools and the new careers concept. Evolving patterns of paraprofessional preparation programs, the development of effective staff relationships, and opportunities for teachers, counselors and administrators to work closely with teacher aides.

5013. Survey of Public Education. Cr. 3-4.

Orientation of the teacher in a public school system. Rights, duties, and responsibilities in relation to the local board of education and the state educational system.

5014. Education Workshop. Cr. 4 (Max. 16).

Must be taken for two consecutive quarters. Teachers, counselors, and administrators cooperate on improvement of instruction and on professional growth. Leadership in group planning and evaluation. Lectures, discussions, conferences, and group work. Dinner required.

5015. Analysis of Teaching. Cr. 4.

Prereq: admission to a Teacher Education Division M.A.T. program; bachelor's degree and consent of adviser. For students in

graduate-level teacher preparation programs. Required for admission to an M.A.T. internship or student teaching experience. Analysis of teaching skills, utilizing micro-teaching techniques and field work.

5017. Using the Newspaper for Learning. Cr. 3-6.

Prereq: teaching experience. The role of modern media in urban living emphasizing communication about contemporary problems, in print and picture. Interviews with professional newsmen. Techniques for using local and national papers for increasing learning in metropolitan classrooms.

5018. Workshop in Intergroup Relations. Cr. 3-9 (Max. 9).

Theory and practice of intergroup relations in the field of education. Intergroup problems in the metropolitan community setting. Discussion group sessions, lectures, and individual study.

5020. Laboratory Workshop in Human Interaction. Cr. 3-9 (Max. 9).

Prereq: written consent of instructor. Small, intensive, self-created groups as laboratories in which members learn how their behavior is seen by and affects others; feelings and attitudes that produce behavior; more appropriate behavior and its application outside the laboratory.

5029. Directed Teaching for In-Service Teachers. Cr. 4-16.

Prereq: written consent of program adviser and Directed Teaching Office. Offered for S and U grades only. Student teaching under supervision of appropriate school and Directed Teaching Office personnel.

5030. (HE 5230) Role of the Teacher in School Health. Cr. 3.

Not open to professional students in health and physical education. Role of the teacher in meeting school and community health problems of the school population. Environmental health factors, teacher appraisal of pupil health, health services, direct and integrated health instruction.

5032. Field Experiences for In-Service Teachers. Cr. 4-12.

Prereq: admission by application to Education Admissions and Records Office. Offered for S and U grades only.

5033. (HE 5233) Health Problems of Children and Youth. Cr. 3.

Recent authoritative information on diseases and defects of school age children. Implications for the school program in health. Lecturers from medicine and public health when possible.

5053. Educational Facilities of Henry Ford Museum and Greenfield Village. Cr. 3-4.

Prereq: senior standing or teaching experience.

5055. (PE 5255) Movement Education for Children. Cr. 4.

Designed for kindergarten and elementary classroom teachers. Principles, values, theory and content of movement education for children. Problem-solving approach to movement education as a foundation for specialized experiences in game patterns, stunts, self-testing activities, and creative dance movement.

5074. (DE 5274) Problems in Driver Education and Traffic Safety. (3,1). Cr. 4.

See Driver Education 5274.

* Information on Head Start Program available in Room 212, Education Building.

5075. (DE 5275) Seminar in Driver Education and Traffic Safety. (3,1). Cr. 4.

See Driver Education 5275.

5081. (DNC 5281) Dance for Elementary School Teachers. (2,2). Cr. 3.

Prereq: directed or regular teaching. Developmental and creative dance experiences related to the elementary school curriculum with emphasis on cognitive and aesthetic concepts.

5082. (DNC 5282) Creative Dance Movement for the Pre-School Child. (2,2). Cr. 3.

Creative dance activities; manipulative, musical, imaginative and kinesthetic approaches to movement.

5093. (HE 5236) Methods and Materials of Instruction—Safety Education. Cr. 3.

See Health Education 5236.

5094. (DE 5273) Teaching Driver Education and Traffic Safety. (3,1). Cr. 4.

See Driver Education 5273.

5110. Art for Classroom Teachers I. Cr. 2-4 (Max. 4).

No credit for majors. Creative activities for use in schools and personal development.

5111. Art for Classroom Teachers II. Cr. 2-4.

No credit for majors. Prereq: TED 5110 or teaching experience. Directed and independent explorations into art processes for personal and professional uses.

5113. Art for Special Education Teachers. Cr. 4.

Prereq: TED 5110 or equiv. Problems, processes and materials particularly adaptable for teachers working with special students.

5114. Contemporary Trends — Fine Arts. Cr. 4.

Slide lectures illustrating the evolutionary developments of contemporary painting and sculpture and related areas of art. The contemporary artist, his products and the relationship of art to society. Interpretation of information in terms of art education.

5115. Contemporary Trends — Applied Arts. Cr. 4.

Survey of architecture, crafts, machine arts, and related fields of the twentieth century in their historical development. Urban aesthetics. Individual projects based on subject matter, teaching methods, and visual materials.

5116. Design in Wood. Cr. 4.

Prereq: teaching experience. No credit after Teacher Education 2114. Wood in terms of cutting and assembling processes, aesthetic considerations, and applications to elementary and secondary school purposes.

5117. Design in Fibers. Cr. 4.

Required for certification in art education. Fiber techniques with emphasis on a creative approach to teaching.

5118. Graphic Art Education. Cr. 4.

Prereq: TED 1118 or 5110 or teaching experience. Advanced study in areas outlined in Teacher Education 1118 with emphasis on individual investigation.

5119. Light, Sound, Space and Motion. Cr. 4.

Alternate requirement for certification in art education. Studio explorations in the creative uses of light media and sound as artistic expression. Their potential as a means of communication and expression in the classroom.

5121. Puppetry and Related Arts. Cr. 4.

Alternate requirement for certification in art education. Purposes, forms, and construction of puppets; plays, staging, presentation.

5123. Modeling and Pottery — Introduction. Cr. 4.

Required for certification in art education. Modeling processes, decoration, glazing, firing, with concentration on content and methods appropriate to teaching in various school situations.

5125. Comprehensive Crafts. Cr. 4.

Prereq: TED 2114 or 5116 and 5127. Emphasis on combinations of appropriate craft materials; wood, metal, plastics, leather.

5127. Design in Metal. Cr. 4.

Required for certification in art education. Metals as functional and expressive materials.

5128. Printmaking. Cr. 4.

Prereq: TED 1118 or 5118. Alternate requirement for certification in art education: Studio explorations of relief, planographic, intaglio, and stencil processes as methods of reproduction for artistic expression, methods in those processes particularly suitable for the classroom.

5129. Visual Communications — Advanced. (4,4). Cr. 4.

Prereq: TED 2113 or teaching experience. Exhibitions, displays, lettering, layout, and technical problems in reproduction methods.

5131. Business Education Principles and Practicum. Cr. 3-4.

Prereq: consent of adviser; satisfactory skill in typing and one other office occupation. Offered for S and U grades only. Role of business education in the total secondary curriculum. Current and projected curriculum planning and implementation.

5133. Practicum in Teaching Office Occupations. Cr. 3-4.

Prereq: satisfactory skill in typing and one other office occupation, TED 5191, 5195; coreq: TED 5134. Offered for S and U grades only. Emphasis on how to determine and develop needed minimum skills for beginning office occupations. Methods, materials and equipment for teaching selected office occupation subjects.

5134. Practicum in Teaching Typewriting. Cr. 3-4.

Prereq: TED 5191, 5195, and typewriting proficiency; coreq: TED 5133. Offered for S and U grades only. Analysis and development of materials and techniques for teaching business typewriting and related clerical occupational skills.

5141. Methods and Materials of Teaching Homemaking and Family Living. Cr. 4.

Prereq: TED 5191, 5195; coreq: TED 5145. Offered for S and U grades only. Basic principles, methods of instruction, and organization of material in homemaking education.

5144. Family Life Education Workshop or Seminar. Cr. 2-16 (Max. 16).

Experiences related to specific issues, problems, or concerns in family life education.

5145. Home and Family Living Seminar. Cr. 4.

Prereq: TED 5191, 5195; coreq: TED 5141. Open only to family life education majors. Offered for S and U grades only. Emphasis

on different facets of the homemaking and family living curricula according to the Vocational Education Act of 1968 and the suggested Michigan Vocational Plan. Experiences with children in selected classrooms which typify these trends in curriculum development.

5147. Teaching Family Financial Management. Cr. 4.

Prereq: SS 0101, 0192 or equiv. Economic, social, and cultural conditions and needs relating to personal and family finance. Emphasis on financial planning by the consumer and its relevant supporting concepts.

5148. Child Development and Family Relationships. Cr. 4.

Prereq: PSY 0198, admission to senior college, family life education major. Parent-child relationships and growth through family living. Directed experience in College of Education Nursery School.

5151. Distributive Education Principles and Practicum. Cr. 3-4.

Prereq: consent of adviser; satisfactory skill in typing and distributive occupations. Offered for S and U grades only. Role of distributive education in the secondary curriculum. Current and projected curriculum planning and implementation.

5153. Business Education Practicum — Distributive Occupations. Cr. 3-4.

Prereq: TED 5191, 5195, satisfactory skill in typing and distributive occupations; coreq: TED 5134. Offered for S and U grades only. How to determine and develop needed minimum skills for beginning distributive occupations. Methods, materials, and equipment for teaching selected distributive occupation subjects.

5170. Experiences for Technical Development. Cr. 2-12 (Max. 12).

Prereq: written consent of vocational and applied arts coordinating committee. For extending technical competence in the major teaching field. Attendance at industrial service schools, Wayne State University Applied Management and Technology Center, or other appropriate field experience.

***5187. Methods and Materials of Instruction I. Cr. 4.**

Prereq: TED 5191, 5195; coreq: TED 6187. Practices and techniques for (1) organizing needed teaching plans and aids for a specific teaching situation, (2) securing needed data regarding students, (3) organizing a class, (4) developing essential records, and (5) establishing a safety program.

5191. Practicum in Principles of Teaching Vocational and Career Education Programs. Cr. 4.

Open only to majors; offered for S and U grades only. Practicum for developing concepts and techniques for implementing professional commitment, performance, objectives, relevant teaching materials, and effective delivery systems in vocational and applied arts education. Each student will select a curriculum area for depth investigation.

5193. Teaching Internship Seminar. Cr. 4.

Prereq: admission to intern teaching; coreq: TED 4192 or 7192. For vocational and applied arts majors only. Offered for S and U grades only. Developing and sharing concepts, methods, and techniques necessary for a competency based program in intern teaching. Curriculum area and joint vocational and career education sessions.

5195. Foundations of Teaching and Learning. Cr. 4-8.

Prereq: TED 5191. Open only to vocational and applied arts students; offered for S and U grades only. Field and laboratory

* For vocational certification when taught or directed by an approved vocational teacher educator.

application of selected principles of human learning, basic assessment, evaluation, and teaching techniques as well as community and technological influences on teaching. Students will demonstrate required course competencies in a field setting.

5203. (MED 0553) Music Education for General Elementary Teachers. Cr. 4.

No graduate credit for music education majors. Foundations and basic methods in music for the classroom teacher.

5311. Seminar in Early Childhood Education. Cr. 3-4.

Prereq: teaching experience or consent of instructor. The role of the staff in improving the quality of living and learning in educational programs for young children in nursery school, day care centers, kindergartens, and primary grades. Improved human relationships, choices for children, play as a way of learning.

5313. Creative Teaching in the Elementary School. Cr. 4.

The process of creativity with implication for the educational experiences and opportunities of teachers and children. Ways and means of developing children's talents and abilities in the teaching-learning process. Problems arising in an urban society.

5314. Urban Resources for Children's Social Education. Cr. 3-4.

Instructional resources in an urban culture. Field trips, conferences with resource people, investigation of instructional materials. Implications for school curriculum of urban ecology and urban renewal, business and industry, the future of Detroit as a seaport, the city as an educational and cultural center.

5315. Workshop — Creative Arts for Today's Children. Cr. 6.

Prereq: teaching experience. Promotion of understanding and skills in the creative arts; music, literature, and the visual and dramatic arts as they relate to each other and to other types of learning. Laboratory experience including observation of children.

5316. Social Studies Curriculum for Elementary Schools. Cr. 4.

Intellectual, social, and personal development through social studies. Professional development experiences for teachers.

5317. Language Arts. Cr. 4.

Prereq: consent of adviser. Content of elementary school language arts programs. Procedures, materials and organizational patterns.

5318. Teaching of Reading. Cr. 4.

Prereq: consent of adviser. The reading process; procedures, materials and organizational patterns used when teaching reading in elementary school classrooms.

5319. Seminar in Adult Relationship in the Preschool (FAC 0586). Cr. 3.

Prereq: senior or graduate standing or consent of instructor. A psychosocial approach to the adults in the young child's life: staff, parents, and community.

5321. Modern Languages in the Elementary School. Cr. 4-6.

Nature and function of language. Psychology of language learning. Cooperative study of methods and materials. Role of foreign language in total elementary curriculum.

5323. The Art of Storytelling (L S 5498). Cr. 4.

Prereq: TED 3321 or 5326 or consent of instructor. Selection of appropriate literature and materials for storytelling; guided practice in the art.

5325. Teaching of Elementary School Mathematics. Cr. 4.

Prereq: consent of adviser. Content of elementary school mathematics programs. Procedures, materials and organization.

5326. Survey of Recent Literature for Children (LS 5516). Cr. 4.
Survey of literature for children of pre-high school age.

5329. Field Study and Seminar in Teaching. Cr. 4.

Prereq: consent of adviser. Advanced seminar in the study of teaching to be taken concurrently with initial part-time or full-time teaching. Teaching experiences of seminar members are used for developing means of self-examination of teaching.

5330. Planning and Implementation of Nursery School Curriculum. Cr. 3.

Prereq: teaching experience. Child development, program models, appraising children's progress, short and long term planning, staff and parent relationships, curriculum areas.

5338. Reading Instruction in Early Childhood Education. Cr. 4.

Prereq: completion of student teaching. Rationale for teaching reading and various reading skills to young children (ages 3 to 8 years). Materials and methods for initial reading instruction.

5403. Education of Exceptional Children. Cr. 4.

Organization, philosophy and history, development and structure; special provisions and their significance for each of the several types of exceptional children; remedial procedures in care, treatment, education and rehabilitation.

5404. Speech Improvement in the Classroom. Cr. 3.

Identification of the speech characteristics and needs of teachers and pupils; deviations from normal speech; integration of speech improvement in classroom activities.

5405. Education of Visually Impaired Children. Cr. 3.

Prereq: TED 5403 or consent of instructor. History, programs, principles in education and guidance of visually impaired children. Observations required.

5407. (SPH 0514) Introduction to Speech Sciences. Cr. 4.

Prereq: TED 5432 and 5433. An overview of the basic processes of speech production; presentation of the principles of physiology, acoustics, phonetics, linguistics, semantics, and neurology involved in normal speech production.

5411. Basic Theories, Programs, and Practices in Mental Retardation. Cr. 4.

Prereq. or coreq: TED 5403 or consent of instructor. Characteristics, classifications, etiologies; evaluation of mildly and seriously retarded; social organization and programs for care, treatment, education, and rehabilitation.

5412. Learning Disabilities of Exceptional Children. Cr. 4.

Prereq. or coreq: TED 5403 or consent of instructor. The behavioral and educational study of children with inferred neurological dysfunctions. Consideration of educational and psychological modalities of intervention.

5413. Teaching Mentally Impaired Children. Cr. 3.

Prereq: TED 5411 or consent of instructor. Specialized teaching approaches, principles and development of curriculum and instructional aids for retarded children, K-12.

5414. Teaching Trainable Impaired Children. Cr. 3.

Specialized teaching approaches; principles and development of curriculum and instructional materials; teaching aids for severely retarded (trainable) children. Observations required.

5420. Pathology of the Organs of Vision. Cr. 4.

Prereq: TED 5405 and consent of adviser. Anatomy, physiology of vision; lectures by ophthalmologists on pathologies and correction of refractive errors; clinical observations; coordinated with procedures for teaching the visually handicapped.

5421. Teaching Partially-Seeing Children. Cr. 3.

Prereq: TED 5403 and 5405. Organization and program planning; pupil evaluation, teaching procedures, curriculum adaption, pupil guidance; observations in eye clinics and participation in laboratory classes.

5422. Braille Techniques and Practice I. Cr. 2.

Prereq: TED 5405 and consent of instructor. Credit only upon satisfactory completion of Teacher Education 5424. Acquisition of competency in reading, writing, teaching braille; preparation and transcription of braille; competency in Nemeth Code in preparation for student teaching of the blind.

5423. Teaching Blind Children. Cr. 3.

Prereq: TED 5422. Pupil evaluation and placement; program planning; specialized curriculum, educational media, teaching procedures; development of mobility in blind children.

5424. Braille Techniques and Practice II. Cr. 2.

Prereq: TED 5422. To be taken in the quarter following Teacher Education 5422.

5425. Techniques in Educating Children with Physical Impairments. Cr. 4.

Prereq: TED 5403 and consent of adviser. Required of students preparing to teach physically impaired children. Emphasis on educational, recreational, and vocational implications of handicapping conditions including amputations, spina bifida, sickle cell anemia, cystic fibrosis, hemophilia, paraplegia. Field trips to authorized community clinics and services included.

5426. Home, School, Hospital Education for Children with Physical Impairments. Cr. 4.

Prereq: TED 5403 and consent of adviser. Implementation of educational programs for physically impaired including home-bound and hospital teaching; orthopedic classes and other special education settings for the physically impaired in regular classrooms. Educational planning for pupils with cerebral palsy, muscular dystrophy, terminal illnesses.

5430. (SPH 0530) Introduction to Speech Pathology. Cr. 4-5.

Development of speech correction in education; classification, basic principles, methods of diagnosing and treating speech deficits; clinical observations required for majors only.

5431. (SPH 0531) Clinical Methods in Speech Pathology. Cr. 5.

Prereq: TED 5430 or consent of instructor. Procedures and materials for clinical diagnosis of articulatory, language, rhythm, and voice deficits of organic and nonorganic causation.

5432. (SPH 0508) Phonetics. Cr. 4.

Multisensory study of the sounds of the English language with emphasis on acoustic, physiologic, and kinesiologic approaches.

5433. (SPH 0509) Anatomy and Physiology of the Speech Mechanism. Cr. 4.

Prereq: consent of instructor. General science of normal speech; anatomy and physiology of respiration, phonation, resonance and articulation.

5434. (SPH 0536) Clinical Practice in Speech Pathology. Cr. 2 (6 required).

Prereq: TED 5431, 6430, and 5436 and written consent of instructor. Supervised experience in applying methods of diagnosis and treatment of clinical cases.

5436. (SPH 0532) Normal Language Acquisition and Usage. Cr. 4.

Language development in children and the associated areas of emotional and motor development; language stimulation techniques and programs.

5437. (SPH 0504) Communications Dynamics in the Black Community. Cr. 4.

Prereq: consent of instructor; ANT. 0520 recommended. Sociolinguistic and rhetorical analysis of speech and language behavior among Afro-Americans; linguistic history and development of black English. Related issues concerning the education of black children.

5438. (SPH 0533) Neurologically Based Speech and Language Disorders. Cr. 4.

Prereq: TED 5430 and 5433. The etiology, symptomology and clinical treatment of neurologically based speech and language disorders in children and adults.

5439. (SPH 0539) Language Pathology: Etiology and Diagnosis. Cr. 4.

Prereq: TED 5430 and 5436 and consent of instructor. Descriptions, etiology, methods of diagnosis of language disorders in children.

5440. (SPH 0540) Introduction to Audiology (AUD 0540). Cr. 4.

Prereq: consent of instructor. Introduction to the physics of sound, anatomy of the hearing mechanism, audiometry, hearing aids, habilitation and rehabilitation of the hearing handicapped.

5441. (SPH 0544) Practicum in Audiology (AUD 0544). Cr. 2-4 (Max. 6).

No graduate credit for audiology majors. Prereq: TED 5440 or 5451 and written consent of instructor. Supervised training and practice for clinical certification. I—Audiometry. II—Speech Reading and Auditory Training.

5445. Observations in Deaf Education. Cr. 2.

Prereq: TED 5452. Observation and written reports in clinical or instructional programs for children with impaired hearing.

5446. Tutorial Experience in Deaf Education. Cr. 3.

Prereq: TED 5454. Observation, written reports, and seminar in clinical or instructional programs for children with impaired hearing.

5450. Introduction to Education of the Deaf. Cr. 3.

Prereq: TED 5440. History, programs, and principles in the education and guidance of the hard-of-hearing and the deaf. Fundamentals of teaching speech, language, and academic subjects; development of speech and language. Observations of community services for the deaf required.

5451. (SPH 0542) Speech Reading and Auditory Training (AUD 0542). Cr. 5.

Prereq: TED 5440 and 5450. Principles of teaching speech reading and utilizing auditory training and amplification systems for the hard-of-hearing and deaf. Observations and practice required.

5452. Speech and Language for the Deaf. Cr. 3.

Prereq. or coreq: TED 5451. Principles and various methods of teaching speech and language to the deaf; functional anatomy of the speech mechanism; the grammar of the English language; observations and demonstrations.

5453. Teaching the Deaf — Speech. Cr. 3 (6 required).

Prereq: TED 5452; must be elected for two successive quarters. Principles, demonstrations, and practice in the systematic development of speech with deaf children.

5454. Teaching the Deaf — Language. Cr. 3 (6 required).

Prereq: TED 5452; must be elected for two successive quarters. Principles, demonstrations, and practice in the systematic development of language with deaf children.

5455. Teaching the Deaf — Speech Reading and Auditory Training. Cr. 3.

Prereq: TED 5454. Methods, principles, demonstrations in teaching speech reading and auditory training to hard-of-hearing and deaf children.

5456. Teaching the Deaf — Academic School Subjects I. Cr. 2.

Prereq: TED 5455; coreq: TED 5457 and student teaching seminar. Principles, demonstrations and practice in teaching academic school subjects to deaf and hard-of-hearing children. Social studies, science, spelling.

5457. Teaching the Deaf — Academic School Subjects II. Cr. 2.

Prereq: TED 5455; coreq: TED 5456 and student teaching seminar. Principles, demonstrations and practice in teaching academic school subjects to deaf and hard-of-hearing children. Reading, mathematics.

5521. Methods and Materials of Instruction — Secondary School Mathematics. Cr. 4.

To be elected in the quarter before student teaching, or in the spring quarter if student teaching is to be elected in the fall quarter. Place of mathematics in secondary school; major concepts of secondary school mathematics; methods and instructional materials; classroom administration; modern trends.

5526. (MAT 0536) Mathematics for Elementary School Teachers I. Cr. 4.

Credit in College of Education only. Discussion and development of the mathematics on which much of the current elementary school mathematics curriculum is based. Sets and Venn diagrams; systems of numeration; prime numbers, least common multiple, greatest common divisor; number systems, inverses, identity, associativity, commutativity, and distributivity; modular arithmetic; notions of ratio and percentage.

5527. (MAT 0537) Mathematics for Elementary School Teachers II. Cr. 4.

Prereq: TED 5526. Credit in College of Education only. A survey of the real number system, algebraic operations, systems of linear equations, theory of equations.

5528. (MAT 0548) Mathematics for Junior High School Teachers I. Cr. 4.

Prereq: TED 5527. Credit in College of Education only. Basic concepts of Euclidean geometry; trigonometric solution of triangles.

5529. (MAT 0549) Mathematics for Junior High School Teachers II. Cr. 4.

Prereq: TED 5528. Credit in College of Education only. Trigonometry and analytical geometry.

5535. (L S 5493) History of Children's Literature. Cr. 4.

Prereq: consent of adviser. See Library Science 5493.

5541. (SPH 0606) Perspectives in Speech Communication Education. Cr. 3.

Prereq: TED 4541 or graduate standing. Historical approaches and basic philosophy of speech education.

5553. Introduction to Modern Languages in Secondary Schools. Cr. 4.

Prereq. or coreq: TED 3355 or TED 5015 and TBF 5731. Methods and goals in modern language instruction. Application of linguistic theory to language learning. Role of language laboratory. Demonstrations and projects.

5554. Assessment and Issues in Modern Language Curriculum. Cr. 4-6.

Prereq: directed teaching. Critical review of methods and materials based on internship or teaching experience. Evaluation of tests and courses of study.

5561. Science Experiences in the Elementary Curriculum. Cr. 4.

Role of learning in science in the elementary school curriculum, objectives, plans of organization for learning, resource materials. Overview of balanced program. Experiences with appropriate experiments, field trips, reference materials, audio-visual resources.

5563. Professional Course — Biological Sciences in the Elementary School. Cr. 4.

Prereq: TED 3561 or 5561. Significant biological principles, generalizations and understandings with relation to their use with children. Appropriate learning activities; experiments, field trips, reference materials, audio-visual resources.

5564. Professional Course — Physical Sciences in the Elementary School. Cr. 4.

Prereq: TED 3561 or 5561. Significant principles, generalizations and understandings in the physical sciences with relation to their use with children. Appropriate learning activities including experiments, field trips, reference materials, audio-visual resources.

5565. Horticulture for Students of Occupational Therapy. Cr. 4.

Use of plant materials as therapy for physical and mental illness. Practical experience in growing, propagating, and arranging plants. The selection and development of horticultural activities appropriate for special patient groups, such as the emotionally disturbed, the blind, the spastics, and the pediatric and geriatric cases.

5566. Methods and Materials of Instruction in Secondary School Science I. Cr. 4.

Role of science in the secondary curriculum. Problems and techniques of teaching science in the secondary schools; objectives,

planning, laboratory experiments, demonstrations, directed study, student projects, text and reference materials, audio-visual resources, evaluation.

5567. Field Course in Natural Science I. Cr. 4.

Field and laboratory study of the relationships between plants and animals and their physical environment in the fall. The out-of-doors as a learning laboratory, techniques of teaching in the out-of-doors, and planning and evaluating school field experiences.

5568. Field Course in Natural Science II. Cr. 4.

Field and laboratory study of ecological communities in the spring. Out-of-classroom study as a means of extending classroom learnings through firsthand experience. Planning and evaluating school field experiences.

5569. Methods and Materials of Instruction in Secondary School Science II. Cr. 4.

Prereq: TED 5566. Problems of selecting and organizing teaching-learning materials in secondary school science. Development of illustrative instructional units. Resources for professional growth of science teachers; professional literature and organizations.

5811. (DNC 5311) Dance and Other Arts in Folk Culture. Cr. 4.

Prereq: DNC 0111 or consent of instructor. Basic art forms and skills indigenous to various folk cultures.

5925. Teaching the Emerging Adolescent in Middle School. Cr. 4.

Prereq: teaching experience or consent of adviser. Assessment of the psychological and social development of middle school students. Implications for instructional group organization, classroom ecology, planning, student-teacher relationships, classroom climate, and individual learning behavior. Alternative approaches to curriculum and instruction in middle school.

5926. Theory and Practice of Middle School Teaching. Cr. 2-6.

Prereq: teaching experience or consent of adviser. Limited to teams of teachers from middle schools. Local school workshop on the middle school.

6002. Computer Applications in Teaching. Cr. 4.

Prereq: CSC 0501 or equiv. Advanced programming in BASIC and other languages appropriate for instruction; computers and teaching; problem-solving, modeling, data-analysis and testing; development of computer-based instructional materials and evaluation of existing materials.

6010. Field Studies in Education. Cr. 2-12 (Max. 12).

Prereq: consent of adviser or instructor. Supervised professional study in field settings.

6014. Local School Curriculum Planning. Cr. 2-8 (Max. 16).

Prereq: teaching experience and consent of adviser. For classroom teachers and teacher educators. Consideration of local problems in elementary and secondary school programs. Planning for better teaching and learning.

6016. Communication, Popular Culture and the Curriculum. Cr. 3-6.

Concepts of communication from varied disciplines; newspapers, magazines, films, radio, television. Place of instruction in observing, viewing, listening in curriculum, K-12. Individual projects involving mass media materials and their application in classroom.

6055. Multidisciplinary Methods and Materials for Teaching the Disadvantaged. Cr. 3-12 (Max. 16).

Prereq: admission to a teacher education program and consent of instructor. Analysis, demonstration, and assessment of methods, techniques and materials used by interns and in-service teachers of the disadvantaged. Micro-teaching and field settings.

6110. Art and Science in Education. Cr. 4-6.

Prereq: teaching experience or consent of instructor. A laboratory-lecture class in which content is a direct growth of field trips.

6111. Curriculum — Problems and Design. Cr. 4.

Prereq: TED 4019 or teaching experience. Art education as part of the total school curriculum. Purposes, content, development of meaningful sequences.

6117. Design in Fibers — Advanced. Cr. 4.

Prereq: TED 5117. Continuation of Teacher Education 5117.

6120. Light, Sound, Space and Motion — Advanced. Cr. 4.

Prereq: TED 5119. Advanced study of light media and sound as an art form.

6121. Puppetry and Related Arts — Advanced. Cr. 4.

Prereq: TED 5121. Continuation of Teacher Education 5121.

6123. Modeling and Pottery — Advanced. Cr. 4.

Prereq: TED 5123. Development of personal aesthetics, skills, and insights into ceramics as a learning medium. Informal instruction; self-direction essential.

6128. Printmaking—Advanced. Cr. 4.

Prereq: TED 5128. Laboratory/lecture course on printmaking methods and materials particularly adaptable for the public schools.

6133. Special Problems in Business Education. Cr. 1-10 (Max. 18). (Max. 10, M.Ed.; max. 18, other advanced degree programs.)

Prereq: business teaching experience, consent of adviser. Special workshops and short term seminars in business subjects.

6135. Principles and Applications of Teaching Business Data Processing. Cr. 2-10 (Max. 10).

Prereq: business teaching experience or consent of adviser. Open only to students in business education curriculum. Designed for administrators and teachers. Principles, applications, and implications of electronic data processing for education. Development of introductory data processing units for use in schools and acquaintance with basic equipment.

6136. Field Studies in Business Education. Cr. 2-12.

Prereq: written consent of vocational and applied arts coordinating committee. Supervised professional study requiring substantial periods of time in business education in local schools or in community, state, nation or foreign countries; observation, collection and analysis of data.

6141. Survey of Home Economics Related Occupational Courses. Cr. 4.

Prereq: teaching experience. Experiences specifically related to teaching occupational training courses; exploration of various curricula patterns; identifying content and procedures; criterion referenced materials.

6143. Adult and Parent Education in Home and Family Living. Cr. 3.

Prereq: PSY 0198, SOC 0506 or 0550. Principles of family living related to adjustments in later stages of family cycle.

6144. Family Life Education in Elementary School. Cr. 3.

Prereq: teaching experience. Blending of aspects of family living with curricular content for grades K-6.

6145. Secondary School Program in Family Living. Cr. 4.

Overview of family life education in the schools; content, methods, problems relating to family living.

6148. Homemaking Curricula. Cr. 4.

Prereq: teaching experience. Economic, technical and social changes as a basis for curriculum development in family life education.

6149. Practicum in Homemaking and Family Life Education. Cr. 3-12 (Max. 12).

Prereq: consent of adviser. Opportunity provided to work with individuals in the various stages of the life cycle.

6153. Special Problems in Distributive Education. Cr. 1-10 (Max. 18). (Max. 10, M.Ed.; max. 18, other advanced degree programs.)

Prereq: business teaching experience, consent of instructor. Special workshops and short term seminars in distributive subjects.

6155. Principles and Applications of Teaching Business Data Processing. Cr. 2-10 (Max. 10).

Prereq: business teaching experience or consent of instructor. Open only to students in distributive education curriculum. See Teacher Education 6135.

6156. Field Studies in Distributive Education. Cr. 2-12.

Prereq: written consent of vocational and applied arts coordinating committee. Supervised professional study requiring substantial periods of time in distributive education in local schools or in community, state, nation or foreign countries; observation, collection and analysis of data.

6170. Experiences for Technical Development. Cr. 2-12 (Max. 12).

Prereq: written consent of vocational and applied arts coordinating committee. See Teacher Education 5170.

6176. Modern Industrial Processes. Cr. 4.

Field trips to selected industries to study the industrial functions of research, development, planning for production, unit and mass producing of an industrial product; service of industrial products.

***6187. Methods and Materials of Instruction II. Cr. 4.**

Prereq: TED 5191, 5195; coreq: TED 5187. Practices and techniques for (1) teaching units in industrial education with group and individualized methods; (2) locating, selecting, and using educational materials.

6191. Planning for Vocational and Career Education. Cr. 4.

Demonstration of the principles and implementation techniques of career education in a vocational or applied arts curriculum as viewed on a programmatic basis.

*For vocational certification when taught or directed by an approved vocational teacher educator.

6192. Cooperative Education — Field Study. Cr. 2-16 (Max. 18).
Prereq: vocational and applied arts major and curriculum area approval. Field experience to correlate with the teaching of vocational and applied arts subjects.

6193. Special Problems in Vocational Education. Cr. 1-4.
(Max. 8, M.Ed.; max. 12, Ph.D.)

Prereq: vocational teaching experience, consent of adviser. Special workshops and short term seminars in vocational subjects.

***6194. Planning and Management of School Laboratories. Cr. 4.**
Architectural details, lay-out principles; visual, auditory and atmospheric control and comfort; circuitry. Procurement, material handling, budgets and accounts, maintenance of equipment and laboratories.

6195. Planning and Organizing Instruction. Cr. 4.
Planning and organizing instruction for a course of study: justification, approaches for content, performance objectives, instructional resources, planning and evaluating units.

6196. Objective Referenced Evaluation in Vocational Education. Cr. 4.

Prereq: TED 5195 or consent of instructor. Open only to vocational and applied arts teachers and administrators. Principles and procedures of objective-referenced evaluation and assessment as incorporated into an accountability model of instruction.

6197. Field Study — The Current Economic Scene and Career Education. Cr. 4 (Max. 8).

Prereq: graduate standing. Through prepared interchange with business and industry, job skills are analyzed, and technological innovations are appraised. Utilization by the teacher of the resources of business and industry in classroom instruction. On-site inspections, outside speakers.

6198. Managing Vocational Instruction and Facilities. Cr. 4.
Prereq: vocational teaching experience or consent of adviser. Open only to vocational and applied arts teachers and administrators. Principles of management as related to the operation of vocational classroom and laboratory facilities; budget, instructional efficiency and teacher liability.

6199. Coordination of Cooperative Occupational Education. Cr. 4.
Philosophy and objectives of educational programs that provide for work experience. Student selection, on-the-job and in-school instruction, placement, coordination, advisory committees, and administration of such programs.

6313. Remedial Instruction in the Basic School Subjects. Cr. 4.
Prereq: teaching experience. Diagnosis, treatment, and prevention of learning difficulties in reading, arithmetic, spelling, handwriting, language, and the content areas in the elementary school. Emphasis on overcoming learning difficulties within the regular classroom.

6314. Analysis, Selection, and Use of Literature for Children (I.S. 6514). Cr. 4.

Prereq: TED 5326 or consent of instructor. Analysis of the literary and extra-literary factors that affect children's experiences with fiction and non-fiction.

6401. Problems in Special Education. Cr. 2-8 (Max. 12).
Prereq: teaching experience and consent of instructor. For teachers,

* For vocational certification when taught or directed by an approved vocational teacher educator.

supervisors, and administrators. Seminars and workshops dealing with problems in educating handicapped children in elementary and secondary programs.

6402. Educating Intellectually Superior, Creative, and Talented Children. Cr. 3.

Prereq: 6 credits in psychology or special education. Individual differences, characteristics, identification, development, curriculum adaptations, teaching procedures.

6403. Education of the Disabled Student in the Secondary School. Cr. 3.

Prereq: special education major and one special education methods course or consent of instructor. Specialized instructional and guidance practices in the education and vocational preparation of mentally retarded, emotionally disturbed, and physically disabled youth in the secondary school.

6420. Orientation and Mobility: Visually Impaired Children. (2,1). Cr. 3.

Prereq: TED 5403, 5405, or consent of instructor. Orientation and mobility methods for blind and partially seeing children, including a review of basic research in sensory perception relevant to orientation of the visually impaired to the physical environment.

6430. (SPH 0630) Speech Pathology. Cr. 4 (Max. 12).

Prereq: TED 5430 or consent of instructor. I—Articulation; II—Stuttering; III—Voice and Cleft Palate. Topics to be announced in *Schedule of Classes*.

6432. (SPH 0632) Organization and Methods in Speech Pathology. Cr. 4.

Prereq: consent of instructor. Class organization, management, materials, teaching aids, techniques.

6433. (SPH 0608) Advanced Phonetics. Cr. 4.

Prereq: TED 5432. Correlation of physiology of the production of speech and the acoustic characteristics of the sounds of English.

6434. (SPH 0609) Electroacoustics of Speech. Cr. 4.

Prereq: consent of instructor. A lecture-laboratory consideration of electroacoustics as applied to speech and audition.

6436. (SPH 0636) Advanced Clinical Practice in Speech Pathology. Cr. 2-4 (Max. 8).

Prereq: TED 5431, 6430, and written consent of instructor. Advanced clinical practice in the diagnosis and treatment of one or more of five speech pathologies: I—stuttering; II—aphasia; III—cleft palate; IV—cerebral palsy; V—voice.

6439. (SPH 0634) Speech Rehabilitation of the Laryngectomee. Cr. 1-4.

Prereq: consent of instructor. Basic principles and practices for developing and improving the speech of the laryngectomee.

6442. (SPH 0640) Anatomy of the Ear (AUD 0640). Cr. 4.

Prereq: graduate standing or consent of instructor. Required of first-year graduate students in audiology and education of the deaf. Functional anatomy, physiology, and neurology of the hearing mechanism; study of research and basic auditory correlates.

6452. Education of the Deaf — Diagnosis and Appraisal. Cr. 3.

Prereq: graduate standing or consent of instructor. Evaluation techniques used in placement, education, and guidance of the deaf and

hard-of-hearing; psychological, social, educational, and vocational problems associated with deafness.

6453. Education of the Deaf — Teaching Aids. Cr. 3.
Prereq: TED 6452 or consent of instructor. Special apparatus, devices, techniques, and educational approaches in current use for teaching deaf and hard-of-hearing children and adults.

6454. Education of the Deaf — Multiple Handicaps. Cr. 3.
Prereq: TED 6453 or consent of instructor. Teaching deaf and hard-of-hearing children with emotional, symbolic, motor, and visual problems. Demonstrations and observations.

6455. Teaching Communication Skills to the Language Disordered (SPH 0638). Cr. 3.
Prereq: TED 5439 or written consent of instructor. Problems of primary language disorders in children; diagnosis; systematic approach to the development of speech and language, educational methods, and evaluation.

6504. Core Curriculum Methods and Materials. Cr. 3-9 (Max. 9).
Practical help for block-time teachers in junior and senior high schools.

6523. Teaching Mathematics in the Middle Schools. Cr. 4.
Prereq: teaching experience. Creative use of resources and materials for improving the mathematics competencies of middle school students; organizing the mathematics classroom for effective instruction; promising trends; related research.

6524. Teaching Mathematics in the Junior High School. Cr. 4.
Prereq: major or minor in mathematics with consent of instructor. Major ideas of junior high school mathematics and senior high school general mathematics; methods and materials of instruction; promising current practices; related research.

6525. Field and Laboratory Work in Secondary Mathematics. Cr. 4.
Criteria for selection of teaching aids; construction and use of field and laboratory devices.

6526. Creative Approaches to Mathematics Education. Cr. 2-8 (Max. 16).
Prereq: teaching experience. Current issues and trends; areas of neglected content; curriculum proposals; related research. Topics to be announced in *Schedule of Classes*.

6527. Seminar I. Cr. 2.
Prereq: 8 credits in education courses; coreq: TED 7902. Application and examination of concepts relevant to internship.

6528. Seminar II. Cr. 2.
Prereq: TED 6527. Application and examination of concepts relevant to internship.

6529. Seminar and Project III. Cr. 4.
Prereq: TED 6528. Continuation of previous seminars plus completion of the project related to teaching junior high school mathematics.

6531. Language and Reading Programs for Middle Schools. Cr. 4.
Analysis and development of instructional methods and programs

for improving reading and language competence of early adolescents in middle schools.

6532. Literature for Adolescents (LS 6512). Cr. 3-6.
Prereq: directed or regular teaching. Standard for evaluating adolescent literature. Selection of literature for individual pupils in relation to interest and reading ability. Use of classroom collections. Techniques for helping pupils read poetry, drama and fiction.

6534. Problems in Teaching Writing. Cr. 3-6.
Prereq: directed or regular teaching or consent of instructor. Study of various approaches: integration with literature, grammar, topics, group, individualized. Concern for motivation, instruction, evaluation. Relation of composition to cognition and perception, critical thinking, self-awareness.

6535. Teaching Literature in Secondary Schools. Cr. 4.
Prereq: teaching experience, directed teaching, or consent of instructor. Structure of poetry, fiction, and drama in relation to aesthetic, social, and psychological needs of secondary school pupils. Relationship of teaching methods to curriculum patterns.

6536. Analysis, Selection, and Use of Reading Materials for Adolescents. Cr. 4.
Prereq: TED 6532 or LS 6512. Criteria for analyzing and selecting textbooks, trade books, newspapers, non-print materials and teacher-made materials suitable for use with adolescents. Exploration of issues such as racism, sexism, and student interests as they relate to adolescent reading materials.

6537. Linguistics and Learning. Cr. 3-6.
Prereq: directed or regular teaching or consent of instructor. Intensive review of current linguistic theory; introduction to psycholinguistics; application for teaching grammar, usage, and composition; development of teaching materials.

6539. Black Culture and the Secondary School English Curriculum. Cr. 3-6.
Prereq: directed teaching or teaching experience. Examination of Afro-American culture with special emphasis on literature. Selection and utilization of materials for the secondary school classroom.

6541. Foundations of Teaching Reading in Secondary Schools. Cr. 4.
Prereq: teaching experience. Psychological and physiological aspects of reading. Standardized and informal diagnostic and evaluation instruments. Interrelationships among specific reading skills.

6542. Remedial Reading in Secondary Schools. Cr. 4.
Prereq: TED 6541 or equiv. Classroom methods in teaching remedial reading, selection and evaluation of instructional materials, use and evaluation of mechanical aids; review of research, relation of teacher to clinician.

6543. Reading in the Content Areas. Cr. 3-6.
Practical approach to the problems of reading disability as they affect the subject matter teacher in social studies, science, mathematics and other areas.

6554. Workshop in Multi-media Teaching of Language. Cr. 3-6.
Preparation and use of scripts and tape recordings in language laboratory. Selection of slides, films, phonograph records, programmed materials in modern languages.

6555. Studies in Foreign Language Teaching. Cr. 2-12.

Prereq: consent of adviser. Special workshops, short-term seminars, cooperative research teams, and topical foreign language studies.

6556. Bilingual Methods I. Cr. 4.

Prereq: admission to a bilingual endorsement program. Introduction to the history, philosophy, methods, and techniques of bilingual/bicultural teaching in the United States with emphasis on the application of philosophies and techniques to school programs in the languages/cultures in which the student is seeking endorsement.

6557. Bilingual Methods II. Cr. 4.

Prereq: TED 6556. In-depth study of bilingual/bicultural teaching techniques and materials with emphasis on language assessment, curriculum development, selection, evaluation and acquisition of materials, standardized and criterion-referenced instruments for the bilingual student.

6558. Culture as the Basis for Language Teaching. Cr. 3-6.

Prereq: consent of adviser. Examination, evaluation, and development of relevant cultural materials and teaching techniques as a vehicle for language teaching, whether in a bilingual/bicultural school setting, English as a second language classroom, or a foreign language program.

6559. Experiences in Language Education. (3,3). Cr. 6.

Prereq: TED 6556. Researching and synthesizing through special projects relevant bilingual/bicultural materials and techniques to deal effectively with limited English-speaking ability students.

6561. Curriculum Planning in Elementary and Secondary School Science. Cr. 3-8 (Max. 16).

Prereq: teaching or supervisory experience. Curriculum study experiences for in-service teachers, supervisors, principals and coordinators in developing science curricula. Goals and objectives of a K-12 program, selection of appropriate teaching-learning experiences and materials, evaluation and preparation of curriculum materials, preparation and evaluation of activities.

6562. Recent Advances in the Teaching of Science in the Elementary School. Cr. 4.

Recent innovations and trends in the teaching of elementary school science. Students examine and work with new materials developed for elementary school science programs.

6563. Recent Advances in the Teaching of Science in the Junior High and Middle Schools. Cr. 4.

Innovations and improvements in middle school and junior high school science teaching. Exploration of appropriate areas of study, development and selection of learning activities and materials, laboratory experiences in selected areas.

6564. Recent Advances in the Teaching of Physical Sciences. Cr. 4.

Recent curriculum studies and research in the teaching of physical sciences. Current problems in teaching of physics, chemistry, the earth sciences. Experiences with appropriate laboratory experiments and equipment, new textual and reference material, new audio-visual resources and evaluation procedures.

6565. Recent Advances in the Teaching of Biological Sciences. Cr. 4.

Recent curriculum studies and research in the teaching of the biological sciences. Implications for improvement of classroom and

laboratory teaching. Experiences with appropriate laboratory experiments and equipment, new textual and reference material, new audio-visual resources and evaluation procedures.

6571. Methods and Materials of Instruction in Secondary Social Studies. Cr. 4.

Prereq: for M.A.T. students or by consent of chairman. Foundations of social studies instruction, social studies curriculum, methods of teaching in junior and senior high school.

6573. Social Studies Curriculum — New Perspectives. Cr. 1-12 (Max. 12).

Prereq: teaching experience. For in-service teachers. Investigation of new developments in the social sciences and trends in the social studies curriculum. Interdisciplinary approaches to curriculum problems. Topics to be announced in *Schedule of Classes*.

6925. Internship in Bilingual Education. Cr. 6-16.

Prereq: admission to bilingual internship. Offered for S and U grades only. Internship in a bilingual/bicultural setting with emphasis on the assessment of the cultural, educational, and linguistic needs of students of limited English-speaking ability as well as the development and implementation of meaningful educational programs designed to meet the individual and unique needs of students of limited English-speaking ability.

6926. Internship: Teaching English as a Second Language. Cr. 2-16.

Prereq: admission to TESOL internship. Internship in a TESOL (Teaching English to Speakers of Other Languages) setting with emphasis on the assessment of cultural, educational, and linguistic needs of students with limited English-speaking ability, and the implementation of programs to meet those needs.

7001. Field Study in Computer Applications in Teaching. Cr. 4.

Prereq: TED 6002 or equiv.; access to computer facilities. Supervised professional study in field settings; development, implementation, and evaluation of computer-based instructional materials.

7010. Field Studies. Cr. 2-8 (Max. 8).

Prereq: consent of adviser or supervising instructor. Supervised professional study in field situations.

7015. Cooperative Planning in the Classroom. Cr. 3-6 (6 required).

Prereq: consent of instructor. Must be taken for two consecutive quarters. Principles and practices learned by direct experiences and studies in student-teacher planning. Direct experience in group problem solving.

7016. Research and Directed Study. Cr. 2-8 (Max. 8).

Prereq: written consent of adviser and graduate officer.

7017. Introductory Master's Seminar. Cr. 4.

Prereq: admission to a master's degree program in Teacher Education Division.

7019. Terminal Master's Seminar and Essay or Project. Cr. 2-4 (4 required).

Prereq: consent of adviser.

7111. Advanced Graduate Problems. Cr. 4-12 (Max. 12).

Prereq: consent of instructor. Pursuit of specific problems in depth. Laboratory hours coordinated with regularly scheduled classes.

7144. Evaluation in Homemaking and Family Life Education. Cr. 4.

Prereq: TED 6148 or teaching experience. Techniques in assessing adequacy of homemaking and family living school programs in terms of current issues and trends. Evaluation as a technique for guiding, learning and appraising progress.

***7185. Evaluation in Industrial Education. Cr. 4.**

Development and administration of teacher-made tests for measuring educational achievement. Paper and pencil, object, manipulative-performance, and published tests. Test evaluation and improvement through item analysis.

7190. Field Study in Career and Vocational Educational Programs. Cr. 2-9 (Max. 9).

Philosophy, objectives, nature, and scope of training programs sponsored by industry, business, and labor. Organized field trips to survey and study selected programs in Detroit area.

7192. Teaching Internship; Secondary Schools. Cr. 2-16.

Prereq: admission to intern teaching. Open only to M.A.T. students. Offered for S and U grades only. Intern teaching in secondary schools; integration of theory and practice.

7194. Research. Cr. 2-9 (Max. 9).

Prereq: written consent of vocational and applied arts coordinating committee. Intensive review of reported research studies. Methods and implementation of research.

7195. Administrative and Supervisory Functions in Vocational Education. Cr. 4.

Activities related to administration and supervision of vocational education on local level. Federal, state, and local relationships. Legislation affecting local and state programs.

7196. Directed Study. Cr. 2-12 (Max. 12).

Prereq: written consent of vocational and applied arts coordinating committee and graduate officer. Offered for S and U grades only. Investigation of selected aspects of vocational and applied arts education.

7197. Introductory Master's Seminar. Cr. 7.

Prereq: admission to a master's program in a vocational and applied arts education curriculum area. Research procedures applied to essays, theses, technical reports, and graduate projects. Review of selected research.

7198. Current Issues and Trends. Cr. 4 (Max. 6, M.Ed. and M.A.T.; max. 12, other advanced degree programs).

Place, function, and evolving concepts of vocational and practical arts education. Economics, sociological, psychological, and technical factors.

7199. Terminal Master's Seminar and Essay or Project. Cr. 4.

Prereq: TED 7197 and 80 percent of graduate credits in program completed. Required of students in vocational and applied arts education electing Plans B or C to complete master's program.

7311. Problems in Early Childhood Education. Cr. 4.

Prereq: TED 5311. Current objectives, innovations, controversies, and research in educational programs for young children in nursery school, day care centers, kindergarten, and primary grades.

Philosophical, psychological, and sociological bases for change. Projects based on interests and problems of students.

7312. Functions of Literature for Children in the Elementary School Curriculum (L S 7511). Cr. 4.

Prereq: TED 6314 or consent of instructor. Function of fiction and non-fiction in developing and supporting the elementary school curriculum.

7326. Social Studies Developments. Cr. 1-12 (Max. 12).

Prereq: social studies teaching experience. Current and developing programs in social studies including rationale, purposes, teaching strategies, materials of instruction, and means of evaluation of learning. Topics to be announced in *Schedule of Classes*.

7327. Current Developments in Elementary Education. Cr. 4-12.

Topics to be announced in *Schedule of Classes*.

7330. Consortium for Teachers of Reading. Cr. 4 (Max. 16).

Prereq: admission to M.Ed. program variant in elementary reading. Must be taken for two consecutive quarters. Formulation of goals for augmenting skill of teaching reading. Comparison of students' attempts to innovate on the job with reports in professional literature of similar innovations. Assessment of program for teaching reading.

7332. Reading in Early Childhood. Cr. 4.

Prereq: TED 7017 or 7330. Factors affecting readiness and initial reading achievement. Materials, programs, and strategies for teaching reading readiness, beginning reading, oral reading and comprehension to young children.

7333. Reading in Later Childhood. Cr. 4.

Prereq: TED 7017 or 7330. Assumptions behind various materials, programs, and techniques for teaching reading to older children. Strategies for teaching oral reading, recall, comprehension, critical reading, study skills, reading in content areas.

7334. Reading Diagnosis and Instructional Planning I. Cr. 4.

Prereq: TED 7332 and 7333 or consent of adviser and instructor. Observing and analyzing oral reading, recall, comprehension, critical reading. Providing diagnostic instruction in these areas. Estimating readability of materials and readiness of learners. Teaching older non-readers.

7335. Reading, Language, and the Learner. Cr. 4.

Prereq: TED 7332 and 7333 or consent of adviser and instructor. Implications for the teaching of reading in theories and research findings about learning, motivation, language formation, cue systems, and reading acquisition.

7336. Organizing for Reading Instruction. Cr. 4.

Prereq: TED 7332, 7333 or consent of adviser and instructor. Organizing for reading instruction in schools, classrooms, reading rooms, and reading laboratories. Record keeping. Reporting to colleagues, administrators, and parents. Assessing, revising, and reassessing programs.

7344. Reading Diagnosis and Instructional Planning II. Cr. 4.

Prereq: TED 6542 or 7334, or consent of adviser and instructor. Selection and administration of tests. Interpretation and reporting of test results. Planning for children with special instructional needs. Procedures for teaching these children.

* For vocational certification when taught or directed by an approved vocational teacher educator.

7345. Practicum in Reading Diagnosis and Instruction. Cr. 4.

Prereq: TED 7344. Offered for S and U grades only. Practice in testing and teaching children, teen-agers, adults with reading difficulties, and in reporting test results, interpretations, recommendations, and observations about progress.

7402. Psycho-Educational Information for Teachers of Emotionally Impaired Children. Cr. 3-4.

Prereq: TED 5412 or consent of instructor. Philosophies, etiology, diagnostic categories, and current programs and models in day school and residential settings for emotionally impaired and socially maladjusted children and youth.

7403. Psycho-Educational Management and Curricula for the Emotionally Impaired. Cr. 3-4.

Prereq: TED 7402 or consent of instructor. Required for teachers preparing to teach emotionally impaired children. Curriculum and program development, special methodologies, techniques of management, and procedures in day school and residential settings for emotionally impaired children and youth. Prevailing views, current issues, and research.

7404. Psycho-Education Intervention and Acting Out Phenomenon. Cr. 3-4.

Prereq: TED 7402 or consent of instructor. Orientations of teachers of the emotionally impaired and ancillary personnel to techniques of intervention with acting out children and youth.

7405. Seminar in the Emotionally Impaired. Cr. 3-4.

Prereq: TED 7403 or consent of instructor. Taken concurrent with or after in-patient psychiatric practicum. Case study, the interdisciplinary approach, interpretation of current psychological and psychiatric techniques, educational and therapeutic relevancy of case information as applied in the practicum experience.

7408. Practicum with the Emotionally Impaired or Socially Maladjusted. Cr. 2-16 (Max. 30).

Prereq: consent of instructor. Special laboratory experience of educational work in an interdisciplinary treatment setting with emotionally impaired children or adolescents.

7415. Educational Diagnosis and Treatment in Mental Retardation. Cr. 4.

Prereq: TED 5413 or consent of instructor. Specific diagnostic and educational approaches to motor, perceptual, and cognitive disabilities of the retarded. Practical programs and theoretical systems of rehabilitation at both elementary and secondary levels.

7427. Recent Trends in Educating Visually Handicapped Children. Cr. 3.

Prereq: baccalaureate degree; initial qualification and experience in educating visually handicapped children. Advanced seminar and workshop for in-service teachers, administrators, and supervisors educating the visually handicapped. Research findings; experimental and recommended methods; materials; equipment; visual aids.

7430. (SPH 0736) Internship in Speech Pathology. Cr. 2-4 (Max. 12).

Prereq: written consent of instructor. Advanced professional experience in clinical speech pathology.

7431. (SPH 0738) Diagnosis of Speech and Language Problems. Cr. 4 (Max. 12).

Prereq: written consent of instructor. Clinical practice in diag-

nosis; referrals to medical specialists; planning, training and treatment procedures of clinical cases. Required of special education master's degree candidates in speech.

7432. (SPH 0702) Advanced Principles and Methods in Speech Science. Cr. 4.

Prereq: TED 5407 or consent of instructor. Integration of the information from various disciplines involved in the production and measurement of speech and language.

7434. (SPH 0734) Dynamic Analogies. Cr. 4.

Prereq: written consent of instructor. Analogies between electrical, mechanical rectilinear, mechanical rotational and acoustical systems.

7435. (SPH 0735) Advanced Anatomy and Physiology of the Speech Mechanism. (2,4). Cr. 4.

Prereq: SPH 0509 or TED 5433 and written consent of instructor. Material fee \$10. The anatomy and physiology of speech; consideration of current literature and dissection.

7436. (SPH 0730) Introduction to Behavior Modification in Speech Pathology. Cr. 4.

Open only to graduate students in speech pathology. Presentation of classical, instrumental, and modeling treatment paradigms as they apply to the various speech and language disorders in individual and group therapy.

7437. (SPH 0737) Special Research Projects in Communication Disorders and Sciences. Cr. 4.

Prereq: consent of instructor. Discussion of research design and implementation; design and conduct of research projects. Student preparation for conducting master's and doctoral research.

7439. (SPH 0739) Advanced Clinical Methods in Speech Pathology. Cr. 4.

Prereq: TED 5438, 5439 and 6430. The presentation of diagnostic and treatment methodologies in: I—stuttering; II—aphasia; III—cleft palate; IV—neuromuscular disorders; V—voice; VI—articulation; VII—language disorders; VIII—selected topics.

7446. Directed Study in Audiology. Cr. 1-4 (Max. 8).

Prereq: written consent of adviser and graduate officer.

7521. Advanced Studies in Teaching Secondary Mathematics I. Cr. 4.

Prereq: mathematics major or minor or consent of instructor, teaching experience. Fundamental concepts of algebra for a modern secondary school mathematics program; current trends and experimental programs; related research; methods and materials of instruction.

7532. Special Problems in the Teaching of English. Cr. 4-12.

Prereq: teaching experience; consent of instructor. Application of modern theories in classroom settings. Advanced experimental teaching or immediate supervision of beginning teacher.

7552. Special Problems in Foreign Language Teaching. Cr. 4-6.

Prereq: consent of adviser. Application of modern theories in classroom teaching. Advanced experimental teaching, or experimentation in supervision of beginning teachers.

7553. Linguistics in Foreign Language Classroom. Cr. 3-6.

Prereq: consent of instructor. Relation of the work of theoretical

and applied linguistics to the goals and techniques of foreign language teachers.

7555. Advanced Workshop in Modern Foreign Language Teaching. Cr. 3-6.

Prereq: TED 7553, 7554 or consent of instructor. Development, production and evaluation of innovative techniques for modern foreign language teaching.

7577. Instructional Processes in Secondary Social Studies. Cr. 4.
The identification, analysis, and application of instructional processes in social studies: inquiry, climate, individualization, discussion tactics, instructional resources.

7578. Organization of Learning Experiences in Secondary Social Studies. Cr. 4.

Sources and nature of social studies objectives, promising learning experiences, and curricular organization. Issues in the use of new curricular patterns.

7902. Internship and Seminar. Cr. 2-16 (Max. 27).

Prereq: admission to student teaching. Offered for S and U grades only. To be elected by graduate students serving internships as part of special teacher education programs; includes regular seminars in which teaching methods in various fields are demonstrated and practiced.

7904. Role of the Team Leader. Cr. 2-4 (Max. 12).

Prereq: consent of instructor and selection as a team leader in a special teacher education program. Role and responsibilities of team leaders in the teacher corps or master teacher in related programs.

7921. Advanced Theory and Practice in Teacher Education. Cr. 8-16.

Prereq: consent of instructor. Problems in supervision of student teachers with attention to advanced study and practice in assessment of individual learning behaviors, media in learning, instructional group organization, ecological study of behavior.

8011. Supervision of Student Teachers. Cr. 4.

Prereq: teaching experience. Program of teacher-education and of student-teaching as it operates to further the development of pre-service teachers. Research and recent developments in the field.

8017. Advanced Seminar. Cr. 2-4 (Max. 12).

Prereq: admission to education specialist or doctoral program and consent of adviser. Topics to be announced in *Schedule of Classes*.

8019. Master's Thesis Research and Seminar. Cr. 2-12 (12 required).

Prereq: consent of adviser.

8136. Honors Projects in Business Education. Cr. 2-9 (Max. 9).

Prereq: written consent of vocational and applied arts coordinating committee for advanced graduate students.

8156. Honors Projects in Distributive Education. Cr. 2-9 (Max. 9).

Prereq: written consent of vocational and applied arts coordinating committee for advanced graduate students.

*For vocational certification when taught or directed by an approved vocational teacher educator.

***8187. Seminar in Industrial Education. Cr. 4-8 (Max. 8).**

Prereq: consent of adviser. Leadership training in recognizing, selecting, and studying current issues in industrial education. Scholarly papers and related resource materials developed and discussed.

***8195. Curriculum Development Procedures. Cr. 4.**

Prereq: consent of adviser and instructor. Acquiring competence and insights needed for giving leadership to development of curriculum materials for vocational and practical arts education.

8198. Vocational Education in Community Colleges. Cr. 4.

Philosophy, objectives, nature, and scope of vocational oriented programs at community college level. Identification of need and plans for implementation. Federal, state, and local relationships.

8199. Terminal Master's Thesis Research and Seminar. Cr. 2-12 (12 required).

Prereq: written consent of vocational and applied arts coordinating committee. Required of students in vocational and applied arts education electing Plan A to complete master's program.

8316. Applied Linguistics in Elementary Education. Cr. 4.

Prereq: post-master's status or consent of instructor. Applications of linguistics, psycholinguistics, sociolinguistics and other inter-related disciplines to elementary education. Applications to the language arts curriculum; interrelationships between language, thought and learning.

8332. Seminar: Survey of Research in Reading. Cr. 4.

Prereq: admission to Education Specialist reading or doctoral program. Survey of studies in reading and of strategies commonly used in reading research.

8333. Seminar: Research Development in Reading. Cr. 4.

Prereq: TED 8332. Survey of research needs in reading. Exploration of strategies for meeting these needs. In-depth study of research in an area of particular interest.

8402. Practicum—Internship in Educating Exceptional Children. Cr. 2-10 (Max. 10).

Prereq: consent of adviser. Professional experiences in university or in state and local programs in special education; based on student's objectives of college teaching or administration and supervision.

8407. Teacher-Consultant of Exceptional Children. Cr. 4.

Prereq: TED 5403, teaching experience or consent of adviser. Professional role of special education teacher-consultant, K-12. Special problems, including adjusted school programming, curriculum, materials, teaching techniques; educational, personal, and vocational guidance.

8436. (SPH 0809) Research in Speech Science. Cr. 4.

Prereq: consent of instructor and adviser.

8437. (SPH 0839) Seminar in Speech and Language Pathology. Cr. 4.

Prereq: TED 7439 or consent of instructor. I—stuttering; II—aphasia; III—cleft palate; IV—neuromuscular disorders; V—voice disorders; VI—articulation; VII—language pathology; VIII—special topics. Topics to be announced in *Schedule of Classes*.

8438. (SPH 0838) Seminar in Speech Science. Cr. 4 (Max. 16).
Prereq: written consent of instructor. I—vocal mechanisms; II—embryology; III—neuromuscular bases; IV—feedback mechanisms. Four credits in each topic. Topics to be announced in *Schedule of Classes*.

8456. (SPH 0844) Research Seminar in Deafness (AUD 0844). Cr. 3-4 (Max. 8).

Prereq: consent of instructor. Methods and procedures in experimental study of deafness and the deaf; literature, apparatus, supervised research projects.

8457. (SPH 0849) Advanced Seminar in Deafness. Cr. 3-4 (Max. 8).

Prereq: consent of instructor.

8521. Advanced Studies in Teaching Secondary Mathematics II. Cr. 4.

Prereq: mathematics major or minor and teaching experience. Role of geometry and trigonometry in secondary school mathematics; selection of major concepts; development of postulational thinking; teaching procedures emphasizing modes of thinking in mathematics; modern trends.

8537. Advanced Seminar in English Education. Cr. 3-12.

Prereq: consent of instructor. Primarily for students beyond the master's degree. Emphasis on theory underlying the teaching of English in secondary schools. Topics include curricular innovation, philosophies related to English teaching, language, literature, composition, and communication. Topics to be announced in *Schedule of Classes*.

8538. Research Seminar in English Education. Cr. 4-6.

Prereq: consent of adviser; TBF 7663 or equiv. Intensive survey of recent research in English education. Construction of research models relevant to problems in the teaching of English. Identification of problem and development of research proposals.

8564. Role of Science in General Education: K-12. Cr. 4.

Literacy in science for all citizens as an objective of the K-12 program. Critical survey of the objectives, content and methods of modern science against the background of the history of teaching sciences in American schools. For classroom teachers, supervisors, administrators who expect to provide leadership in improving science education in the schools.

8565. Recent Research in Curriculum Development and Instruction in Science. Cr. 4.

Analysis of recent research in science education, K-12, and consideration of implications for curriculum designing in science and for improvement of classroom teaching. Consideration of research tools needed by teachers of science.

8574. Social Studies Program in Grades K-12. Cr. 4.

Prereq: master's degree or consent of instructor. Purposes, organization, and trends in social studies, K-12. Current problems, curriculum development, evaluation, uses of appropriate resources. Nature of the social studies.

8851. Theory and Process of Teaching. Cr. 4.

Prereq: admission to doctoral or Education Specialist program. Analysis and evaluation of selected theories of teaching. Critique of research on questioning strategies, teacher influence patterns, teacher roles, teacher personality patterns, management of instruction, and instruction in multicultural settings.

8852. Advanced Practicum. Cr. 4-12.

Prereq: TED 8851 and consent of adviser. Involvement for at least one quarter in an internship setting, arranged in relation to present position or other work-study opportunity in school or college. Interns develop projects and agenda for seminar.

8927. Research Seminar: Curriculum Improvement. Cr. 4.

Prereq: TED 8851 or consent of instructor. Socio-economic, cultural, psychological, and political bases for curriculum construction. Creating curriculum modules that change with the times and are responsive to the needs of young people today. Practical applications, constructing samples of substantive curricula that can be enacted into teaching strategies and encourage independent and social learning.

8928. Research Seminar: The Education of Teachers. Cr. 4.

Prereq: TED 8851 or consent of instructor. New models of teaching, pre-service and in-service: e.g., competency based, theory and practice, liberal arts, certification codes, continuous professional development as examples of continuous education reform. Actual pre-service or in-service application of dilemma-reconciliation way of thinking required.

8929. Advanced Clinic in the Analysis of Teaching. Cr. 2-6.

Prereq: admission to TED doctoral or Education Specialist program. Modern analysis-of-teaching techniques applied to instructional assessment situations. Psychological and sociological aspects of the teaching act. Working with pre-service and in-service teachers to improve instruction.

9016. Research and Directed Study. Cr. 2-8 (Max. 8).

Prereq: written consent of adviser and graduate officer.

9017. Doctoral Orientation Seminar. Cr. 4.

Comprehensive interpretation of crucial aspects of Doctor of Education degree program: official requirements and targets, examinations, dissertation proposal; acquaintance with college departmental staffs, their scholarly and research perspectives and horizons.

9018. Doctoral Thesis Seminar. Cr. 3-9 (Max. 9).

Prereq: consent of adviser. Primarily arranged to encourage processing of doctoral dissertations in progress by staff assistance and mutual analysis and constructive suggestions by seminar members.

9019. Doctoral Dissertation Research and Direction. Cr. 1-16 (Ed.D., 30 required; Ph.D., 45 required).

Prereq: consent of adviser.

9196. Research. Cr. 2-12 (Max. 12).

Prereq: consent of vocational and applied arts adviser.

9199. Doctoral Dissertation Research and Direction. Cr. 1-16 (Ed.D., 30 required; Ph.D., 45 required).

Prereq: consent of vocational and applied arts adviser.

9407. Advanced Seminar. Cr. 3 (Max. 9).

Prereq: specialist or doctoral standing in special education and consent of adviser. Major problems and trends.

THEORETICAL AND BEHAVIORAL FOUNDATIONS

Division Head: Carroll L. Munshaw, Professor
369 Education Building

PROFESSORS

Edward G. Adamek, Jr., Walter J. Ambinder, George D. Barahal, Arthur Brown, J. Frank Campbell, Louis J. Cantoni, Nathaniel L. Champlin, Abraham F. Citron, Juanita Collier, John J. DeWitt, Claire Irwin, August F. Kerber, Jacob S. Kounin, George E. Leonard, Frederick C. Neff, Leon T. Ofchus, John J. Pietrofesa, Howard Splete, John Friend, William W. Wattenberg, Robert E. Wurtz

ASSOCIATE PROFESSORS

Guy T. Doyal, John A. George, Stephen B. Hillman, Alan M. Hoffman, Sandra L. Lyness, Donald Marcotte, Barry S. Markman, Maureen Sie, Paul W. Sullivan, Maurice O. White

ASSISTANT PROFESSORS

Arnold B. Coven, Henderson Hendrix, Alan C. Klaas, Robert V. Miller, Susan Stanford

PURPOSES

The Division of Theoretical and Behavioral Foundations includes degree programs in school and community psychology and educational psychology, educational evaluation and research, educational guidance and counseling, educational sociology, history and philosophy of education, and vocational rehabilitation counseling. The division is designed to facilitate a realization of the following aims:

- (1) to integrate the educational experiences and course offerings provided in the several programs;
- (2) to perform a service function in meeting the needs of those enrolled in other divisions within the College;
- (3) to provide degree and specialist programs for those who are majoring in a particular field of the division;
- (4) to provide students with an opportunity to study those aspects of educational thought and practice that cut across subject-matter lines and are truly "foundational";
- (5) to formulate programs looking toward the development of new combinations of specialties as in (a) counseling-psychology, (b) pupil personnel managers in school systems, (c) utilization of theoretical and behavioral foundations in teacher education, (d) underlying philosophical premises of educational programs and practices; and
- (6) to design interdisciplinary, cross disciplinary, and multi-disciplinary experiences for and with students.

Programs leading to the Master of Education, Master of Arts, Doctor of Education, and Doctor of Philosophy degrees and the Education Specialist Certificate are offered under the guidance of this division.

See preceding section on graduate degrees for information regarding areas of specialization for each degree and basic degree requirements. Consult appropriate divisional adviser for detailed information about areas of specialization.

GENERAL DIVISION OFFERINGS

	<i>credits</i>
TBF 6050.....Special Problems in Educational Foundations.....	2-8
TBF 6610.....Field Studies	2-12
TBF 7616.....Research and Directed Study	1-9
TBF 7619.....Terminal Master's Seminar and Essay or Project..	1-6
TBF 8619.....Master's Thesis Research and Seminar	4-12
TBF 9616.....Research	2-9
TBF 9619.....Doctoral Dissartation Research and Direction....	1-16



SCHOOL AND COMMUNITY PSYCHOLOGY

The program in school and community psychology is designed to develop the competencies necessary for approval as either a school or community psychologist at the master's, education specialist, or doctoral level.

The prospective student should recognize that this program involves, in addition to course requirements, clinical experience in school and agency settings dealing primarily with children. Retention in the program and recommendation for approval depends upon demonstrated clinical skill as well as on the student's academic achievement. The staff will try to arrange for a one-year psychological internship in either a school system or a community mental health facility.

In addition to completing all procedures for admission to the Graduate Division, each applicant will complete a form obtained from the division, complete a testing program, and be interviewed by an admissions committee. All admissions requirements must be completed before the first day of January.

The doctoral degree—Please consult with the appropriate chairman of the program area doctoral committee for specific program information and requirements. All applicants for admission must have completed a minimum of forty-five graduate credit hours in psychology or educational psychology or hold a master's degree in either educational psychology or psychology.

Offerings—School and Community Psychology

7000 level and above for graduate credit only

	<i>credits</i>
TBF 5662.....Statistical Readings in School and Community Psychology	2
TBF 5663.....Research Readings in School and Community Psychology	2
TBF 5832.....Psychology of Learning Disability	4
TBF 7730.....Educational Psychology for Practitioners	6
TBF 7732.....The Behavioral Change Process in School and Community Psychology I	4
TBF 7734.....The Behavioral Change Process in School and Community Psychology II	4
TBF 7735.....The Learning Process	4
TBF 7739.....Professional Seminar in School Psychology	4
TBF 7740.....Social Psychology of Educational Issues	4
TBF 7741.....Human Developmental Psychology	4 or 6
TBF 7831.....Psychology of Deviancy and Exceptionality in School Children	5
TBF 7832.....Psychological Resources in the Community	5
TBF 7833.....Diagnostic Study of Learning Disability	4
TBF 7839.....Terminal Master's Seminar and Essay Direction—Clinical Psychology	1-5
*TBF 7841.....Psychological Evaluation I	4
**TBF 7846.....Psychological Evaluation II	4
**TBF 7849.....Psychological Evaluation III	4
TBF 8832.....Practicum in Clinical Procedures	4-8
TBF 8833.....Internship in School and Community Psychology	1-10

*A course materials fee of \$5.00 is assessed for this course.

**A course materials fee of \$10.00 is assessed for this course.

EDUCATIONAL PSYCHOLOGY

Educational Application of Behavioral Psychology

A specialization in the application of behavioral psychology is available to students majoring in educational psychology. Students selecting this area will become familiar with both theory and research in behavioral psychology so as to be able to apply it in both social and academic settings. They will learn to deal with discipline and learning problems, affect behavior changes in both individual and group situations, write and evaluate units of instruction, understand the important relationships between behavioral psychology and other theories of learning and instruction, and demonstrate skills in performing and evaluating research in behavioral psychology. Practicum experience will be provided. In addition to completing all the admission procedures of the Graduate Division and the prerequisites of the College of Education, each applicant must complete a form obtained from the Division of Theoretical and Behavioral Foundations and be interviewed by an admissions committee.

Educational Applications of Humanistic Psychology

The primary purpose of the program is to assist classroom teachers in humanizing the teaching-learning process. It endeavors to offset the depersonalizing and manipulative influences of our mass society on children and youth. The basic core of the program is to help students learn effectively. Considerable attention will be given to young people developing skills in the areas of inquiry, discovery, critical thinking and creativity.

These goals are not likely to be achieved by partial changes but rather by involving creative teachers in an open, honest, and humanistic approach to gaining a deeper understanding of children and youth, their growth, learning, motivation, and expectations. It is important for teachers to be accountable for the total child, the affective domain as well as cognitive.

The doctoral degree—Please consult with the appropriate chairman of the program area doctoral committee for specific program information and requirements. All applicants for admission must have completed a minimum of forty-five graduate credit hours in psychology or educational psychology or hold a master's degree in either educational psychology or psychology.

Offerings—Educational Psychology

7000 level and above for graduate credit only

	<i>credits</i>
TBF 3731.....Introduction to Child Study	4
TBF 5731.....Foundations of Educational Psychology	4
TBF 5734.....Psychology of the Mentally and Physically Handicapped	4
TBF 5735.....Psychology of the Gifted	3
TBF 5738.....Emotional and Social Problems of the School Child	4
TBF 5740.....Psychological Problems of Disadvantaged Youth	4
TBF 5741.....Mental Hygiene and Its Relation to the Problems of Education	3-4
TBF 5742.....Juvenile Delinquency and the Schools	3

TBF 5743	Mental Hygiene of Childhood and Youth I— Understanding Behavior (S W 0727)	2
TBF 5744	Mental Hygiene of Childhood and Youth II— Management of Behavior (S W 0728)	2
TBF 5745	Child Psychology	3
TBF 5747	Mental Hygiene of Childhood and Youth III— Dynamics of Group Life (S W 0730)	2
TBF 5748	Adolescent Psychology	3-4
TBF 6731	Behavior Modification in the Classroom	4
TBF 6732	Practicum in Educational Psychology	2-8
TBF 6734	The Psychology of Mental Retardation	3
TBF 6735	The Learning Process and Programmed Instruction	3-4
*TBF 6831	Introduction to Psychological Testing	4
TBF 7731	Advanced Educational Psychology	3 or 6
TBF 7733	Cognitive Processes in Human Learning Related to School Practice	3
TBF 7736	Research in Educational Psychology	2-12
TBF 7737	Seminar on Emotional Disturbances—Treatment and Behavioral Control (S W 0729)	3
TBF 7738	Dynamics of Human Behavior	3
TBF 7742	Introduction to Behavioral Psychology	4
TBF 7743	Applications I: Behavioral Psychology and Social Learning	4
TBF 7744	Applications II: Behavioral Psychology and Academic Behavior	4
TBF 7745	Experimental Analysis of Behavior	4
TBF 7746	Topical Seminar in Behavioral Psychology	4
TBF 7747	Accountability Models in Education	4
TBF 7749	Terminal Master's Seminar and Essay Direction— Educational Psychology	1-6
TBF 7834	Diagnostic Study of Learning Disability—Advanced	4
TBF 7847	Advanced Psychodiagnostics	4
TBF 8730	Seminar in Educational Applications of Humanistic Psychology	3
TBF 8731	Fundamental Studies in Educational Psychology I— Learning	4
TBF 8733	Fundamental Studies in Educational Psychology II— Growth and Development	4
TBF 8734	Fundamental Studies in Educational Psychology III— Group Dynamics	4
TBF 8735	Fundamental Studies in Educational Psychology IV	4-12
TBF 8839	Master's Thesis Research and Seminar— Clinical Psychology	1-12
TBF 9731	Doctoral Seminar in Educational Psychology	4
TBF 9739	Doctoral Dissertation Research and Direction— Educational Psychology	1-16

EDUCATIONAL EVALUATION AND RESEARCH

Evaluation and Research offers concentrated programs for building careers and leadership positions in educational evaluation and research. Students may concentrate in evaluation and measurement; statistics and computer technology; research methodology and experimental design.

Students who have already successfully achieved backgrounds, training, and experience in substantive disciplines of education and in non-education fields and who are interested in becoming more proficient in scientific inquiry, research strategies, evaluation and appraisal of studies, models and designs, and multivariate analysis, especially in conjunction with computer facilities, are afforded such opportunities in these programs. For optimum effective preparation, internships in research will be arranged upon request. The staff is available to students and faculty for consultation in research design and multivariate analysis.

Cooperative educational programs leading to training skills in Educational Evaluation and Research—Medical Education are also available. This specialized training is available in cooperation with the Division of Educational Services and Research (DESR) of the School of Medicine. Persons from the health sciences seeking educational research skills and persons from education backgrounds seeking health science education skills are brought together for their mutual growth. Details are available from EER and DESR faculty.

Consult an appropriate adviser for specific requirements.

Offerings—Educational Evaluation and Research

7000 level and above for graduate credit only		credits
TBF 5661	Foundations of Evaluation and Research	3-4
TBF 5662	Statistical Readings in School and Community Psychology	2
TBF 5663	Research Readings in School and Community Psychology	2
TBF 6764	Computer Research in Problems of Elementary and Secondary Schools	4
TBF 7661	Evaluation and Measurement	3-4
TBF 7662	Practicum in Evaluation	3-9
TBF 7663	Fundamentals of Statistics	4
TBF 7664	Fundamental Research Skills	4
TBF 7665	Computer Use in Research	4
TBF 8500	Advanced Research Seminar in Urban Education	3-12
TBF 8661	Measurement Problems in Medical Education I	4
TBF 8662	Measurement Problems in Medical Education II	4
TBF 8663	Advanced Problems in Measurement	4
TBF 8664	Variance and Covariance Analysis	4
TBF 8665	Multivariate Analyses	4
TBF 8666	Research and Experimental Design	4
TBF 8667	Medical Statistics	4
TBF 9661	Current Issues and Problems in Medical Education	4
TBF 9662	Internship in Evaluation and Research	4-8
TBF 9668	Advanced Research and Experimental Design	4
TBF 9669	Topical Seminar in Evaluation and Research	4

EDUCATIONAL GUIDANCE AND COUNSELING

Educational Guidance and Counseling, through its graduate programs, offers students the opportunity to gain information, knowledge, and skills in the field of guidance and counseling. Educational areas include counseling at the elementary, junior, and senior high school levels as well as college student personnel work. Non-educational programs are geared for working with adults and in agencies.

In accordance with State regulations, this department has been approved to offer programs leading to recommendation for Michigan school counseling endorsement at the K-8, 7-12, and K-12 levels. Please consult the guidance and counseling statement for current information.

The Master of Education degree program is for those enrollees who expect to become school counselors or school guidance workers and for those who wish to broaden or improve their teaching competency by including guidance skills.

*A course materials fee of \$5.00 is assessed for this course.

The *Master of Arts* degree program is mainly offered for those who expect to become college student personnel workers or for those who are engaged in guidance and counseling in non-school settings such as community agencies, employment agencies, churches or religious organizations, and industry.

The *Education Specialist Certificate* program is intended for those who are presently counselors or college student personnel workers and who want to improve their competence in these areas. Since this is a professional certificate program, persons considering admission should confirm that they have the prerequisites, education and experience prior to making formal application.

Doctoral programs, the Ph.D. and Ed.D., with a specialization in guidance and counseling are provided as preparation for positions of leadership and teaching.

Effective July, 1971, for the endorsement of a valid teaching certificate to include counseling, the Michigan State Board of Education requires that the applicant shall have successfully completed an approved counselor education program of not less than eighteen semester (twenty-seven quarter) hours of credit. The M.Ed. degree is the normal route for teachers seeking a counseling endorsement to follow. Acceptance into the Master of Education degree program does not guarantee a recommendation for counseling endorsement upon completion of the degree.

Please consult with an appropriate adviser regarding available sub-specializations in guidance and counseling and for program information and specific requirements.

Offerings—Educational Guidance and Counseling

5000 level and above for graduate credit only

	<i>credits</i>
TBF 2702 Career Development, Career Options, and the University Student	2
TBF 5701 Student Personnel Work in Higher Education	3
TBF 5707 Introduction to Guidance	3
TBF 5708 Group Counseling Participation	3
TBF 6701 The Role of the Teacher in Guidance	3
TBF 6702 Workshop in Guidance and Counseling	2-6
TBF 6704 The College Student and His Environment	3
TBF 7701 The Role of the Teacher in Guidance	3
TBF 7702 Internship in Guidance and Counseling and Student Personnel Work	3-9
TBF 7703 Introduction to Group Guidance	3-4
TBF 7704 Case Problems in Guidance	3-4
TBF 7705 The Counseling Process	3-4
TBF 7706 Counseling and Consulting in Education	3
TBF 7707 Guidance in the Elementary School	3
TBF 7708 Educational and Occupational Information	3-4
TBF 7709 Terminal Master's Seminar and Project in Guidance and Counseling	4
TBF 8700 Field Study in Group Counseling	4
TBF 8701 Referral Relationships in School and Community	3
TBF 8702 Counseling Practicum	4-12
TBF 8703 School Guidance Programs—Organization, Administration, and Evaluation	4
TBF 8704 Guidance and Counseling Seminar in Case Problems	4
TBF 8705 Advanced Student Personnel Work	2-3
TBF 8706 Research in Guidance and Counseling	2-9
TBF 8707 Advanced Seminar in Guidance, Counseling, and Student Personnel Work	4

TBF 8708 Advanced Educational and Occupational Information	3-6
TBF 8709 Interdisciplinary Seminar in Pupil Personnel Work	2-18
TBF 9700 Guidance and Counseling Field Study in Group Leadership	4-12
TBF 9702 Internship in Counseling/Counselor Education	2-12
TBF 9706 Research in Guidance and Counseling II	3-9
TBF 9709 Doctoral Dissertation Research and Direction in Guidance and Counseling	1-16

EDUCATIONAL SOCIOLOGY

The programs in educational sociology have as a central purpose the preparation of students with a knowledge of the concepts, methodology, and research findings in sociology relating to the total educational enterprise in contemporary society. The formal and informal social structure of the school as well as the broad processes of cultural transmission in society are central areas for investigation. Course work and advisement are focused on developing students who are able to apply sociological concepts and techniques to major educational problems. Considerable emphasis is placed upon shifts in power in educational decision making and upon the effects of social change on education; the impact upon education of the rise in power of minority groups is the central focus of attention.

Offerings—Educational Sociology

7000 level and above for graduate credit only

	<i>credits</i>
TBF 6628 Sociology of Urban Schools (SOC 0628)	3-4
TBF 6636 Conflict and Controversy in Public Education: A Sociological Perspective	3-4
TBF 7620 The Study of Black History and Culture	4
TBF 7621 Educational Sociology	3-4
TBF 7623 Intergroup Relations in Community and School	3-4
TBF 8621 Design and Construction of Models in Behavioral Research	3-4
TBF 8626 Seminar: Sociocultural Analysis of Selected Educational Problems	3-4
TBF 8628 Seminar: Educational Anthropology	3-4
TBF 8629 Sociocultural Factors in Learning	3-4
TBF 9628 Doctoral Seminar in Educational Sociology	4

HISTORY AND PHILOSOPHY OF EDUCATION

In the study of the history and philosophy of education the Division offers courses and a program to cultivate and strengthen the ability of teachers and other educators to employ the concepts and methods of philosophy in educational and social situations. Experiences in the historical and philosophical examination of the educational enterprise, of crucial issues, and of conflicting philosophies of education are provided. A master's program in history and philosophy of education is designed both for those who seek to explore the philosophy of education in some depth while, at the same time, wishing to retain their identity with another field of specialization, and for those who seek to specialize in the field and wish to go on to the doctoral degree. A doctoral program is offered in this field. Programs are available also to non-teaching candidates whose major interests lie outside the context of classroom teaching.

Majors in this field are afforded the opportunity to select from a range of cognate courses in the humanities, literature, music, art, history, psychology, philosophy, and the social sciences.

Offerings—History and Philosophy of Education

7000 level and above for graduate credit only

	<i>credits</i>
TBF 3601.....Introduction to Philosophy of Education	4
TBF 5601.....Analysis of Career Education	4
TBF 7011.....(ELD 7011) Survey of Educational Systems in Developing Areas of the World	4
TBF 7601.....Philosophy of Education	3
TBF 7602.....History of Education in the United States	3
TBF 7603.....Existentialism and Education	3
TBF 7604.....History of Western Education	3
TBF 7607.....(ELD 8854) History and Philosophy of Higher Education in America	4
TBF 7608.....Current Controversies in Education	3
TBF 8601.....Aesthetic Foundations of Education	3
TBF 8605.....Seminar in Pragmatism and Education	3
TBF 8607.....Seminar: Special Problems in Educational Theory..	3
TBF 8608.....Seminar: Ethics and Education	3
TBF 9601.....Doctoral Seminar in Philosophy of Education.....	4

VOCATIONAL REHABILITATION COUNSELING

Vocational rehabilitation programs prepare rehabilitation counselors for public and private rehabilitation agencies. These programs equip the student to work with young people and adults who are physically disabled, mentally retarded, emotionally ill, or socially disadvantaged. In preparing the student, emphasis is placed on developing his ability to provide clients with (1) diagnostic and remedial services, (2) vocational counseling, (3) training, and (4) placement in suitable employment.

Offerings—Vocational Rehabilitation Counseling

7000 level and above for graduate credit only

	<i>credits</i>
TBF 6471.....Pre-Vocational Preparation for the Emotionally, Mentally, and Physically Handicapped	4
TBF 7470.....Psychiatric Information for Rehabilitation Counselors and Teachers of Emotionally Disturbed Adolescents	3
TBF 7471.....Vocational Rehabilitation of the Handicapped (S W 0726)	4
TBF 7472.....Practicum in Vocational Rehabilitation	3-6
TBF 7473.....Rehabilitation Counseling of the Handicapped.....	4
TBF 7474.....Advanced Rehabilitation Counseling of the Handicapped	4
TBF 7475.....The Placement Process in Rehabilitation Counseling	4
TBF 7476.....Research in Vocational Rehabilitation	2-4
TBF 7477.....Seminar in Vocational Rehabilitation	4

COURSES OF INSTRUCTION¹ (TBF)

2702. Career Development, Career Options, and the University Student. Cr. 2.

Offered for S and U grades only. Identification of educationally and vocationally relevant self-characteristics; examination of fields of study and vocational opportunities; sources of further career development assistance.

3601. Introduction to Philosophy of Education. Cr. 4.

Systematic examination of leading philosophies of education.

3731. Introduction to Child Study. Cr. 4.

Introductory course in human growth and development for those who will be working with children and adolescents in educational settings.

5601. Analysis of Career Education. Cr. 4.

Analysis of the philosophical, historical, sociological, and psychological foundations of career education. Focus on State of Michigan and national models of career education.

5661. Foundations of Evaluation and Research. Cr. 3-4.

Appreciation and exploration of scientific inquiry and of essential concepts in educational research, evaluation, measurement, statistics. Procedures, models, resources for problem solving.

5662. Statistical Readings in School and Community Psychology. Cr. 2.

Prereq: admission to the school and community psychology program. An introduction to readings of descriptive and inferential statistical studies in school and community psychology.

5663. Research Readings in School and Community Psychology. Cr. 2.

Prereq: admission to the school and community psychology program. Introduction to applications of research methodology in school and community psychology.

5701. Student Personnel Work in Higher Education. Cr. 3.

Overview of guidance services appropriate for higher education.

5707. Introduction to Guidance. Cr. 3.

No credit after TBF 6701 or 7701. Prereq: admission or pending admission to master's program in counseling. Introduction to guidance and counseling theory and practice. Survey of guidance services and their application in various settings.

5708. Group Counseling Participation. Cr. 3.

For counseling majors only. Prereq. or coreq: TBF 5707. Offered for S and U grades only. The second part of the beginning course for majors in the educational guidance and counseling master's program. Students experience membership in a counseling group.

5731. Foundations of Educational Psychology. (3,3). Cr. 4.

Introduction to current issues in educational psychology through lecture and field laboratory experiences.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

5734. Psychology of the Mentally and Physically Handicapped. Cr. 4.

Prereq: TBF 3731 or 5731 or TED 3355. Psychology of handicapped children and adults; emphasis on etiology and diagnostic techniques, with special reference to adjustment.

5735. Psychology of the Gifted. Cr. 3.

Prereq: 6 credits in psychology. Definition, criteria and identification of gifted children. Their physical, psychological, social and emotional characteristics. Adjustment problems and educational programs.

5738. Emotional and Social Problems of the School Child. Cr. 4.
Nature and causes of social and emotional maladjustment of school age children and youth. Role of school in emotional and character disorders.

5740. Psychological Problems of Disadvantaged Youth. Cr. 4.

Prereq: TBF 3731 or 5731 or TED 3355 or consent of instructor. Psychological factors which have special relevance to disadvantaged youth. Socio-psychological factors underlying educational problems of disadvantaged, such as development of self-concept, conflict in value systems and life styles of the poor. Educational implications will be developed.

5741. Mental Hygiene and Its Relation to the Problems of Education. Cr. 3-4.

Provides understanding of the necessary conditions underlying mental health, and a sense of what teachers and educational leaders can and cannot do to foster emotionally healthy and well-integrated personalities in children and youth.

5742. Juvenile Delinquency and the School. Cr. 3.

Prereq: 9 credits in psychology or sociology. Causes and treatment of juvenile delinquency; the role of the school in the lives of the young people involved. Evidence as to major causative factors set forth, various programs developed for treatment or prevention discussed, actions which can be taken by school people described in terms of data as to probable effects.

5743. Mental Hygiene of Childhood and Youth I — Understanding Behavior (S W 0727). Cr. 2.

Prereq: introductory course in psychology or child development, or consent of adviser. Aspects of understanding children which are directly relevant to task of handling their behavior. Criteria for assessment of normality and health versus degree of disturbance as far as can be read from behavior observation.

5744. Mental Hygiene of Childhood and Youth II — Management of Behavior (S W 0728). Cr. 2.

Prereq: introductory course in psychology or child development, or consent of adviser. Practical approaches and implications for handling child behavior and managing groups; techniques of behavioral intervention; dynamics and issues of punishment; selection of appropriate action techniques for individuals and groups.

5745. Child Psychology. Cr. 3-4.

Basic concepts, research findings and problems regarding children's behavior as it applies to the school and home situations.

5747. Mental Hygiene of Childhood and Youth III — Dynamics of Group Life (S W 0730). Cr. 2.

Prereq: introductory course in psychology or child development, or consent of adviser. The group as an organism; group structure

and group atmosphere; group roles and leadership types; function of organization, routine, and discipline. The individual in the group; case-relevant behavior. Composition of groups; psychology of gang formation; problems of group disintegration. Problem of contagion. Use of the group medium for recreational, educational, and clinical goals; techniques of group leadership.

5748. Adolescent Psychology. Cr. 3-4.

Basic concepts, research findings and problems regarding adolescents' behavior as it applies to the school and home situations.

5832. Psychology of Learning Disability. (3,2). Cr. 4.

The application of psychological principles of learning and perception to the study of children with learning disability. Emphasis on surveying diagnostic and remedial procedures and commercially prepared material. Observation in the Learning Abilities Laboratory required.

6050. Special Problems in Educational Foundations. Cr. 2-8 (Max. 16).

Prereq: consent of instructor. Current issues, trends, controversies, and research in the educational foundations areas. Topics and further prerequisites to be announced in *Schedule of Classes*.

6471. Pre-Vocational Preparation for Emotionally, Mentally and Physically Handicapped. Cr. 4.

Rehabilitation philosophy; psycho-social factors in disability; pre-vocational evaluation and training for handicapped children and youth; problems, methods, and techniques in work adjustment programs.

6610. Field Studies. Cr. 2-12 (Max. 12).

Prereq: consent of adviser. Supervised professional study conducted in field setting.

6628. Sociology of Urban Schools (SOC 0628). Cr. 3-4.

Prereq: consent of adviser. Sociological analysis of the societal and institutional problems and processes bearing on the education of children from the various sub-cultural backgrounds found in modern urban areas. Emphasis on contemporary educational problems in the urban setting.

6636. Conflict and Controversy in Public Education: A Sociological Perspective. Cr. 3-4.

To provide an arena for open discussion and analysis of current problems in public education from a sociological point of view.

6701. The Role of the Teacher in Guidance. Cr. 3.

Introductory survey of guidance principles, techniques, and roles, with stress on classroom application. Special attention will be given to the interdisciplinary context of an effective program.

6702. Workshop in Guidance and Counseling. Cr. 2-6 (Max. 12).

Prereq: consent of instructor. For counselors, teachers, and pupil personnel workers. Consideration of counseling and guidance issues in school, agency and community settings. Counseling, consultation, and coordination dimensions of guidance and counseling.

6704. The College Student and His Environment. Cr. 3.

Prereq: TBF 5701. The variety of student "types" and the interaction of students and their environment.

6731. Behavior Modification in the Classroom. (3,0,2). Cr. 4.

Introduction to the systematic application of behavior modification and operant conditioning principles in the classroom and other social settings. Identifying behavior problems, counting behavior, specifying techniques for either increasing or decreasing the frequency of behavior and evaluating results of those techniques. Primarily for classroom teachers.

6732. Practicum in Educational Psychology. Cr. 2-8 (Max. 8).

Prereq: consent of adviser and instructor. Closely supervised seminar-laboratory experiences to provide opportunities for evaluation and application of theory related to educational psychology.

6734. The Psychology of Mental Retardation. Cr. 3.

Advanced analysis of psychological problems and issues related to the mentally retarded. Classification, differential diagnosis, counseling, education, training.

6735. The Learning Process and Programmed Instruction. Cr. 3-4.

Prereq: TBF 3731 or 5731 or TED 3355 or consent of instructor. Development and use of programmed instruction skills including the writing of behavioral objectives for cognitive and affective domain, task analysis performance, taxonomic sequence of objectives, pre-testing and post-testing. Demonstration of learned skills in writing and field testing instructional programs.

6764. Computer Research in Problems of Elementary and Secondary Schools. (3,1). Cr. 4.

Prereq: admission to graduate program. No previous experience in computer programming necessary. Introduction to techniques of using computer in action research projects of teachers and administrators in elementary and secondary schools.

6831. Introduction to Psychological Testing. Cr. 4.

Prereq: 6 credits in psychology. No credit after Theoretical and Behavioral Foundations 7841. Not to be elected by majors in guidance, vocational rehabilitation, school or clinical psychology. Designed for classroom teachers, and presents an overall view of group and individual tests used in assessment. Emphasis is placed on comprehension of the rational and interpretation of instruments and use of reports made to schools. Opportunity is provided for the examination and evaluation of materials available.

7011. (ELD 7011) Survey of Educational Systems in Developing Areas of the World. Cr. 4.

Prereq: ELD 5011, or consent of adviser or instructor. Educational programs in Asia, Latin America, and Africa; influence of European and American school systems. Local cultural and economic factors. Community development, UNESCO and other aid programs. Orientation for study and research abroad.

7470. Psychiatric Information for Rehabilitation Counselors and Teachers of Emotionally Disturbed Adolescents. Cr. 3.

Psychiatric information for rehabilitation counselors and teachers of emotionally disturbed adolescents to develop an understanding of disabling psychiatric conditions.

7471. Vocational Rehabilitation of the Handicapped (S W 0726). Cr. 4.

Prereq: consent of instructor. Organization, legislative provisions and rehabilitation procedures for physically and mentally handicapped adults. Causes, incidence, and nature of various handicaps; diagnosis, treatment, education and training, placement and follow-up.

7472. Practicum in Vocational Rehabilitation. Cr. 3-6 (Max. 12).

Prereq: admission to rehabilitation training program and consent of adviser. Supervised educational experiences in approved rehabilitation agency settings. Integration of professional practice with understandings and skills acquired through course work. Practicum experiences in public and private rehabilitation agencies.

7473. Rehabilitation Counseling of the Handicapped. Cr. 4.

Prereq: TBF 7471 or consent of instructor. Principles, procedures, and methods in counseling the physically and mentally handicapped; referral, interviewing, testing, determining eligibility; selecting vocational objectives, personal adjustment counseling, vocational training, selective placement and follow-up. Types of disabilities, their implications for rehabilitation with case studies.

7474. Advanced Rehabilitation Counseling of the Handicapped. Cr. 4.

Prereq: TBF 7473 or consent of instructor. Limited to students working with disabled clients. Analysis of case histories; clients' social milieu; the rehabilitation plan; community resources; counselor-client relationship. Type of counseling most appropriate in rehabilitation; principles and techniques in case recording.

7475. The Placement Process in Rehabilitation Counseling. Cr. 4.

Prereq: TBF 7471 or consent of instructor. Vocational structure of society; occupational information in rehabilitation counseling; job analysis related to employment of the handicapped; job entry requirements; selective placement procedures; follow-up techniques; case studies.

7476. Research in Vocational Rehabilitation. Cr. 2-4 (Max. 9).

Prereq: written consent of adviser.

7477. Seminar in Vocational Rehabilitation. Cr. 4.

Prereq: major in vocational rehabilitation and consent of instructor.

7601. Philosophy of Education. Cr. 3.

Philosophical ideas shaping educational theory and practice.

7602. History of Education in the United States. Cr. 3.

Study of the development of American education from Colonial times to the present.

7603. Existentialism and Education. Cr. 3.

Prereq: TBF 3601 or 7601 or consent of instructor. The impact of existentialism on educational thought.

7604. History of Western Education. Cr. 3.

History of educational thought and institutions in Europe and America with emphasis on cultural backgrounds.

7607. (ELD 8854) History and Philosophy of Higher Education in America. Cr. 4.

Prereq: consent of adviser. The growth and development of American higher education including events, circumstances, and ideas that influenced it.

7608. Current Controversies in Education. Cr. 3.

Current controversies in education with special emphasis on value conflicts.

7616. Research and Directed Study. Cr. 1-9 (Max. 9).

Prereq: written consent of adviser and graduate officer.

7619. Terminal Master's Seminar and Essay or Project. Cr. 1-6.

Prereq: consent of adviser.

7620. The Study of Black History and Culture. Cr. 4.

Afro-American culture with emphasis on sociological implications in contemporary American society.

7621. Educational Sociology. Cr. 3-4.

Application of key sociological concepts and knowledge to educational processes in school and society. Basis for advanced specialist work in educational sociology.

7623. Intergroup Relations in Community and School. Cr. 3-4.

Dynamics of intergroup and intercultural relations; intergroup relations and ideologies seen in the context of power struggles; civil rights revolution in relation to school and community; theories of change in intergroup relations.

7661. Evaluation and Measurement. Cr. 3-4.

Principles and practices of evaluation and measurement with special focus on behavioral goals. Informal and formal evaluational strategies. Problems of self-evaluation. Logical, philosophical, and linguistic problems of evaluational methods and devices. Metrical analyses and standards. Innovations in educational assessment and accountability. Teacher-made tests.

7662. Practicum in Evaluation. Cr. 3-9 (Max. 9).

Application of principles of quantification in education; construction of examinations, scales, tests, evaluational instruments for classroom use. Rationales for improving diagnosis and appraisal of behavioral goals in curriculum and school programs. Special emphasis on student's own evaluation and measurement problems.

7663. Fundamentals of Statistics. Cr. 4.

Basic patterns of statistical inference, confidence estimation and significance testing regarding measures of averages, dispersion, correlation, and selected non-parametric statistics. Review of mathematics essential for statistics, sampling, computer use.

7664. Fundamental Research Skills. Cr. 4.

Basic skills in educational research: nomenclature, problem, theory, hypothesis formulation; bibliographical and documentary techniques; retrieval systems; development of data-gathering instrumentation; computer orientation and research uses; collection and organization of data; manuscript development; report writing.

7665. Computer Use in Research. (3,1). Cr. 4.

Prereq: TBF 7663. Introduction to computer use in educational research with emphasis on using library programs. BASIC and other computer languages.

7701. The Role of the Teacher in Guidance. Cr. 3.

No credit after Theoretical and Behavioral Foundations 5707 or 6701. Primarily for school personnel other than counselors. Introduction to guidance with special attention to activities and opportunities of the classroom teacher.

7702. Internship in Guidance and Counseling and Student Personnel Work. Cr. 3-9 (Max. 9).

Prereq: consent of adviser and instructor during quarter prior to

registration. Field supervision of counselors or personnel workers in institutional settings. Students must engage at least part-time in such roles. Seminar to discuss problems encountered in guidance and personnel programs.

7703. Introduction to Group Guidance. Cr. 3-4.

Prereq: TBF 5707 or 7701, or equiv. and graduate course in educational psychology. Methods of group study for guidance functions. Students apply such methods to their own groups.

7704. Case Problems in Guidance. Cr. 3-4.

Prereq: TBF 5707 or 7701, or equiv. and graduate course in psychology or educational psychology; prereq. or coreq: TBF 7841. Identification and analysis of problems of individuals. Actual cases analyzed; proposals designed for solution.

7705. The Counseling Process. Cr. 3-4.

Prereq: TBF 7704, 7841 or equiv; prereq. or coreq: TBF 7708. Theories underlying various approaches to counseling. Practice in interviewing and analyzing interviews.

7706. Counseling and Consulting in Education. Cr. 3.

Prereq: TBF 5707. Open only to guidance majors. Theories and strategies for counseling and consulting in a school setting.

7707. Guidance in the Elementary School. Cr. 3.

Prereq: TBF 5707 or 7701, or equiv.; and consent of instructor. Principles of guidance in the elementary school; focus on the relationship of guidance to developmental needs of children.

7708. Educational and Occupational Information. Cr. 3-4.

Occupational choice, its nature, determinants, and implications for education. Sources and uses of educational and occupational information. Relation of school experiences and occupations.

7709. Terminal Master's Seminar and Project in Guidance and Counseling. Cr. 4.

Prereq: 30 credits toward master's degree and TBF 7705. Consideration of current issues in guidance and counseling relevant to needs of the students. Identification, development, and written report of independent project required.

7730. Educational Psychology for Practitioners. Cr. 6.

Open only to students admitted to school and community psychology program. An introduction to applied educational psychology designed to highlight the major thrusts in the field which have relevance for the practitioner.

7731. Advanced Educational Psychology. Cr. 3-6.

Major issues in the field are explored to provide a basis for later specialization. Major topics covered: motivation, learning, individual differences, child development, group processes. Normally scheduled for the summer quarter.

7732. The Behavioral Change Process in School and Community Psychology I. Cr. 4.

Prereq: admission to school and community psychology program. Analysis of strategies for behavior change that are most frequently applied to children and adolescents.

7733. Cognitive Processes in Human Learning Related to School Practice. Cr. 3.

Prereq: 8 credits in psychology and consent of instructor; others

by consent of instructor. To examine and analyze how cognitive processes, contents and outcomes are related to child's concept formation, concept learning and problem solving in individual and group setting.

7734. Behavioral Change Process in School and Community Psychology II. Cr. 4.

Prereq: admission to school and community psychology program. Review of the methodology and theories of behavior and attitude change which are most applicable to adults.

7735. The Learning Process. Cr. 4.

Designed to develop understanding of substantive issues involved in learning as they relate to school practice.

7736. Research in Educational Psychology. Cr. 2-12 (Max. 12).

Prereq: written consent of adviser.

7737. Seminar on Emotional Disturbances — Treatment and Behavioral Control (8 W 0729). Cr. 3.

Prereq: written consent of instructor. Enrollment in this seminar and practicum is limited to 12. Utilization and understanding of group processes in development of personality; special attention to those processes relevant to emotional adjustment and management of individuals requiring therapy.

7738. Dynamics of Human Behavior. Cr. 3.

Application of Kurt Lewin's principles of topological and vector psychology to human behavior in educational settings.

7739. Professional Seminar in School Psychology Cr. 4.

Open only to students in school and community psychology program. Orientation to school psychology, its history and current status. Consideration is given to legal and ethical problems and the role and responsibilities of the professional psychologist working in the public schools.

7740. Social Psychology of Educational Issues. Cr. 4.

Prereq: TBF 7846 and 8832. Open only to students in the school and community psychology program. Conceptual tools for school or community psychologist to function as a change agent in the social settings which influence children. Ecology and the possibilities of modifying the ecology influencing child behavior.

7741. Human Developmental Psychology. Cr. 4 or 6.

Survey of research from psychoanalytic and learning viewpoints on human development from birth to adulthood. Emphasis on school environment and community psychology practice.

7742. Introduction to Behavioral Psychology. Cr. 4.

Prereq: admission to educational psychology—behavioral psychology sequence. Basic principles and theories of behavioral psychology. Theoretical aspects of both operant and respondent conditioning.

7743. Applications I: Behavioral Psychology and Social Learning. Cr. 4.

Prereq: TBF 7742. Behavioral techniques used in dealing with the social behavior of both groups and individuals.

7744. Applications II: Behavioral Psychology and Academic Behavior. Cr. 4.

Prereq: TBF 7743. Behavioral techniques used in dealing with the academic behavior of both groups and individuals.

7745. Experimental Analysis of Behavior. Cr. 4.

Prereq: TBF 6735, 7735, 7744 or consent of instructor. Analysis and synthesis of the results and methodology of studies in the principles of behavioral psychology.

7746. Topical Seminar in Behavioral Psychology. Cr. 4.

Prereq: TBF 7745 or consent of instructor. Research findings, issues and applications in specific areas of behavioral psychology. Topic to be selected in advance.

7747. Accountability Models in Education. Cr. 4.

Models for achieving accountability in education. Implications for measurement and evaluation as well as possible psychological and school consequences.

7749. Terminal Master's Seminar and Essay Direction — Educational Psychology. Cr. 4.

Prereq: consent of adviser. Working through in-depth issues raised in Theoretical and Behavioral Foundations 7731, exploring area of student's primary interest, developing and presenting the student's essay topic.

7831. Psychology of Deviancy and Exceptionality in School Children. Cr. 5.

Prereq: admission to the school and community psychology program; coreq: TBF 7832. An intensive analysis of psychopathology and behavioral disorders in childhood based on the major applicable theoretical viewpoints. Major emphasis given to viewpoints derivative of learning theories and psychoanalytic orientations.

7832. Psychological Resources in the Community. Cr. 5.

Coreq: TBF 7831. Limited to students in the school and community psychology program only. Students will be placed in community mental health agencies where they can observe and interact with exceptional children under supervision.

7833. Diagnostic Study of Learning Disability. Cr. 4.

Prereq: TBF 5832. Diagnosis of severe learning disability; theories of causation and methods of treatment; laboratory experience in treatment of youngsters with severe reading and other learning problems.

7834. Diagnostic Study of Learning Disability — Advanced. Cr. 4.

Prereq: TBF 7833. Emphasis on developing diagnostic skills and evaluating theoretical contributions to the field of learning disability; laboratory experience in diagnosing several youngsters with severe reading and other learning problems.

7839. Terminal Master's Seminar and Essay Direction — Clinical Psychology. Cr. 1-5.

Prereq: consent of adviser.

7841. Psychological Evaluation I. Cr. 4.

Intensive overview of tests used to assess intelligence, educational achievement, personality dynamics, and vocational interest and aptitude for psychologists and counselors. Case materials.

7846. Psychological Evaluation II. Cr. 4.

Open only to students in school and community psychology program. The selection of test batteries for use in school and community settings; the development of prescriptive recommendations. Emphasis on Binet and Wechsler scales and other individual tests.

7847. Advanced Psychodiagnostics. Cr. 4.

Prereq: written consent of instructor. Closely supervised, seminar-laboratory type of experience in which students will appraise specific children, interview parents and teachers. Specialists in other fields (psychiatry, pediatrics, neurology, social work) will be brought into the total diagnostic procedure.

7849. Psychological Evaluation III. Cr. 4.

Open only to students in school and community psychology program. Introduction to administration, scoring, and interpretation of projective techniques employed in clinical assessment. Rorschach, figure drawing and thematic instruments (TAT, CAT).

8500. Advanced Research Seminar in Urban Education. Cr. 3-12.

Prereq: introductory research or statistics course. Identification of researchable problems in the urban schools and determining research strategies to deal with these problems.

8601. Aesthetic Foundations of Education. Cr. 3.

Prereq: TBF 3601 or 7601 or consent of instructor. Conflicting philosophies of art as they bear upon education.

8605. Seminar in Pragmatism and Education. Cr. 3.

Peirce, James, Dewey, and other leading pragmatists; their impact on educational thought.

8607. Seminar: Special Problems in Educational Theory. Cr. 3 (Max. 12).

Prereq: TBF 3601, or 7601 or consent of instructor. Analysis of alternative theoretical grounds for resolving educational issues and inquiry into ways of relating educational theory to practice.

8608. Seminar: Ethics and Education. Cr. 3 (Max. 6).

Prereq: TBF 3601 or 7601 or consent of instructor. The moral and ethical dimensions of education.

8619. Master's Thesis Research and Seminar. Cr. 4-12 (12 required).

Prereq: consent of adviser.

8621. Design and Construction of Models in Behavioral Research. Cr. 3-4.

Prereq: consent of adviser. Methods and procedures in developing research models in education and the behavioral sciences. Research in field settings and improvement of educational practices.

8626. Seminar: Socio-Cultural Analysis of Selected Educational Problems. Cr. 3-4.

Prereq: TBF 7621 or consent of instructor. Concepts, methodology, and research findings in sociology, anthropology, and social psychology utilized to analyze specific educational problems. Implications of research literature in such areas as social stratification, power structure, and cultural differences as applied to the educational process.

8628. Seminar: Educational Anthropology. Cr. 3-4.

Prereq: TBF 7621 or consent of instructor. Major cultural variables and socialization processes in literate and non-literate societies. Cross-cultural studies and their implications for the educational process.

8629. Socio-cultural Factors in Learning. Cr. 3-4.

Prereq: any graduate course in educational sociology or sociology.

Construction of personality, life orientation, identity, emotion, aspiration, perception, cognition, and learning as taking place in a given culture or cultures — within specific social experience.

8661. Measurement Problems in Medical Education I. Cr. 4.

Prereq: TBF 7661 or equiv. or consent of instructor. Development and validation of achievement tests in medical education. Dimensionality and applied use of tests, profile analysis, cut-off scores, scoring systems, decision making, and measurement of interpersonal skills.

8662. Measurement Problems in Medical Education II. Cr. 4.

Prereq: TBF 7661 or equiv. or consent of instructor. Theory and rationale of response contingent testing; development and scoring of response contingent tests; psychophysical methods related to scaling problems; multidimensional scaling.

8663. Advanced Problems in Measurement. Cr. 4.

Prereq: TBF 7661 or equiv. Non-statistical and statistical analysis of tests, evaluational instruments and procedures, rationales of reliability, validity, item analysis, norms, scale-units, combination of scores, errors of sampling, measurement, prediction.

8664. Variance and Covariance Analysis. Cr. 4.

Prereq: TBF 7663 or equiv. Multiple, partial, canonical correlation; variance and covariance analysis: Models I and II. Statistical analysis in experimental designs: Random Blocks, Latin Squares, Graeco-Latin Squares, simple and complex factorials, confounding, fractional and split-plot designs. Supporting topics and techniques: missing observations; adjustment of means; probing the homogeneity of means and variances; study of contrasts; orthogonal polynomials and computer usage.

8665. Multivariate Analyses. Cr. 4.

Prereq: TBF 7663 or equiv. Discriminant analysis, profile analysis; placement and classification problems; component and factor analysis. Supporting topics and techniques; transformation of variables, computer usage.

8666. Research and Experimental Design. Cr. 4.

Prereq: TBF 7663 or equiv. Design of empirical research for students possessing basic knowledge of statistics. Topics include hypothesis construction, sampling theory, experimental and quasi-experimental designs, selection of statistical procedure, and construction of data gathering instruments.

8667. Medical Statistics. Cr. 4.

Prereq: TBF 7663 or equiv. Design and construction of life tables and rates, clinical traits, and age adjusting rates; missing data; the treatment of qualitative data and relative risks, attack rates and odds ratio in medical experiments.

8700. Field Study in Group Counseling. Cr. 4.

Prereq: TBF 7703 or equiv., and consent of instructor. Each member meets with small groups of clients of his selection two to four times weekly and makes records of group and individual behavior. Members will meet in seminar to analyze developments in their groups, problems of group leadership, and techniques in adjustment of individuals through group interaction.

8701. Referral Relationships in School and Community. Cr. 3.

Prereq: TBF 6701 or 7701 or equiv. Examination of referral roles, relationships, and resources in schools and community agencies; cooperative possibilities between and within various helping agencies.

8702. Counseling Practicum. Cr. 4-12 (Max. 12).

Prereq: admission to graduate program in guidance; TBF 7705, 7708, 7841, or equiv., and written consent of department. Supervised practice counseling in the counseling laboratory. All skills and understandings developed in guidance preparation used. Counseling competence evaluated.

8703. School Guidance Programs — Organization, Administration, and Evaluation. Cr. 4.

Prereq: TBF 5707, 6701 or 7701 or equiv., or consent of instructor prior to registration. Purpose and place of the guidance function; human relationships and the administration of guidance programs; survey of methodology and literature.

8704. Guidance and Counseling Seminar in Case Problems. Cr. 4.

Prereq: TBF 7704 and consent of instructor. Theories of personality and learning applied to case diagnosis and projected remediation.

8705. Advanced Student Personnel Work. Cr. 2-3.

Prereq: TBF 5701, 6704, 7702; ELD 7855; consent of instructor. For students in student personnel work. Current issues and trends in the field; ways to assess impact of college on students; role of student personnel worker; student concerns and issues; innovative personnel programming.

8706. Research in Guidance and Counseling. Cr. 2-9 (Max. 9).

Prereq: admission to master's or education specialist program; written consent of adviser.

8707. Advanced Seminar in Guidance, Counseling, and Student Personnel Work. Cr. 4.

Prereq: admission to education specialist or doctoral program, or consent of instructor; course in statistics or research methods. Problems, methods, issues, and current research relating to theory and practice in the field of guidance and student personnel.

8708. Advanced Educational and Occupational Information. Cr. 3-6.

Prereq: TBF 7708 or equiv., consent of instructor. For advanced students in guidance and counseling and related areas. Current trends and changes in career guidance and career education; their implications for guidance and counseling programs. Consideration of other related topics.

8709. Interdisciplinary Seminar in Pupil Personnel Work. Cr. 2-18.

Prereq: master's degree in guidance and counseling; admission to advanced or special program in guidance and counseling; consent of instructor. Interdisciplinary discussion of effects and implications of learnings from the disciplines of psychology and sociology on the total personnel program using these learnings. Emphasis on the team approach in meeting the needs of children and youth in metropolitan schools.

8730. Seminar in Educational Applications of Humanistic Psychology. Cr. 3 (Max. 9).

Prereq: admission to the master's program in educational psychology and TBF 7731. Exploration, analysis, and assessment of pertinent and underlying concepts in the educational aspects of humanistic psychology. Involvement in an open and humanistic setting.

8731. Fundamental Studies in Educational Psychology I — Learning. Cr. 4.

Prereq: admission to a doctoral program or consent of instructor.

Basic theoretical issues and relevant evidence in respect to learning, perception, cognition, motivation, and ability structure. Trends in thinking and research most likely to influence educational policy and teacher-education practices are focal points for intensive reading and class discussion.

8733. Fundamental Studies in Educational Psychology II — Growth and Development. Cr. 4.

Prereq: TBF 5745 or 5748 and admission to a doctoral program or consent of instructor. Contemporary issues in child growth and development related to classroom practice.

8734. Fundamental Studies in Educational Psychology III — Group Dynamics. Cr. 4.

Prereq: TBF 7738 and admission to a doctoral program or consent of instructor. Critical evaluation of researches and research methods in the field of group dynamics related to education.

8735. Fundamental Studies in Educational Psychology IV. Cr. 4-12 (Max. 12).

Prereq: one course in educational psychology in the "8000" series and consent of adviser. Advanced study of a specific area in psychology with application to educational practice. Topics to be announced in *Schedule of Classes*.

8739. Master's Thesis Research and Seminar — Educational Psychology. Cr. 2-12 (12 required).

Prereq: consent of adviser.

8832. Practicum in Clinical Procedures. Cr. 4-8 (Max. 8).

Open only to students in school and community psychology programs. Practicum in one of the clinics cooperating with Wayne State University. Testing under supervision of the cooperating clinic. Conferences and seminars.

8833. Internship in School and Community Psychology. Cr. 1-10 (Max. 10).

Prereq: admission to school and community psychology program and consent of instructor. Offered for S and U grades only. Placements in a school or community mental health agency appropriate to the student's plan of study.

8839. Master's Thesis Research and Seminar — Clinical Psychology. Cr. 2-12 (12 required).

Prereq: consent of adviser.

9601. Doctoral Seminar in Philosophy of Education. Cr. 4.

Prereq: formal admission to a doctoral program in education. For doctoral majors in other areas of concentration only. Systematic study of the field of philosophy of education.

9616. Research. Cr. 2-9 (Max. 9).

Prereq: written consent of adviser.

9619. Doctoral Dissertation Research and Direction. Cr. 1-16 (Ed.D., 30 required; Ph.D., 45 required).

Prereq: consent of doctoral adviser.

9628. Doctoral Seminar in Educational Sociology. (3,1), Cr. 4.

Prereq: formal admission to a doctoral program in education. For doctoral majors in other areas of concentration only. Basic concepts of sociology applied to contemporary education.

9661. Current Issues and Problems in Medical Education.

Cr. 4 (Max. 12).

Prereq: admission to doctoral program and consent of instructor. Detailed analysis and review of the literature on current topics of research or theoretical concern related to problems in medical education.

9662. Internship in Evaluation and Research. Cr. 4-8.

Prereq: TBF 7661, 7663, 7664 or equiv.; and consent of adviser. Negotiated and supervised placement into a constructive research situation. May be taken in lieu of the specialized research techniques requirement.

9668. Advanced Research and Experimental Design. Cr. 4.

Prereq: TBF 7664 or equiv. Principles and applications of operations research. Systems analysis, linear programming; multivariate designs and experimentation. Critical studies of models and applications to educational problems; computer usage.

9669. Topical Seminar in Evaluation and Research.

Cr. 4 (Max. 12).

Prereq: written consent of instructor. No topic may be repeated. Various topics in research, measurement, and statistics taught on an advanced level. Specific topic taught each quarter is available from evaluation and research faculty.

9700. Guidance and Counseling Field Study in Group Leadership.

Cr. 4-12 (Max. 12).

Prereq: TBF 8700; consent of instructor. Supervised practice in leading counseling groups, developing group counseling skills and competencies, learning alternate designs for group functioning, in-depth analysis of human behavior in small groups. Seminar and laboratory experience.

9702. Internship in Counseling/Counselor Education.

Cr. 2-12 (Max. 36).

Prereq: admission to a doctoral program in guidance and counseling; consent of adviser. Purposes, objectives, materials, techniques, practices in counselor education programs. Supervised experience in advanced counseling and in various phases of the counselor education program.

9706. Research in Guidance and Counseling. Cr. 3-9 (Max. 9).

Prereq: admission to doctoral program, consent of adviser.

9709. Doctoral Dissertation Research and Direction in Guidance and Counseling. Cr. 1-16 (Ed.D., 30 required; Ph.D., 45 required).

Prereq: consent of adviser.

9731. Doctoral Seminar in Educational Psychology. Cr. 4.

Prereq: formal admission to a doctoral program in education. For doctoral majors in other areas of concentration only. An examination of psychological concepts relevant to the development and carrying forward of the work of the schools.

9739. Doctoral Dissertation Research and Direction — Educational Psychology. Cr. 1-16 (Ed.D., 30 required; Ph.D., 45 required).

Prereq: consent of doctoral adviser.

College of Education Directory

Dean

Room 441, Education Building; telephone: 577-1620

Associate Dean

Room 441, Education Building; telephone: 577-1620

Assistant Deans

Room 441, Education Building; telephone: 577-1620

Division Head, Academic Services

Room 489, Education Building; telephone: 577-1600

Division Head, Educational Leadership

Room 369, Education Building; telephone: 577-1632

Director, Library Science Division

Room 315, Kresge Library; telephone: 577-1825

Division Head, Teacher Education

Room 241, Education Building; telephone: 577-0900

Associate Division Head, Teacher Education

Room 269, Education Building; telephone: 577-0904

Division Head, Theoretical and Behavioral Foundations

Room 321, Education Building; telephone: 577-1835

Mailing address for all offices:

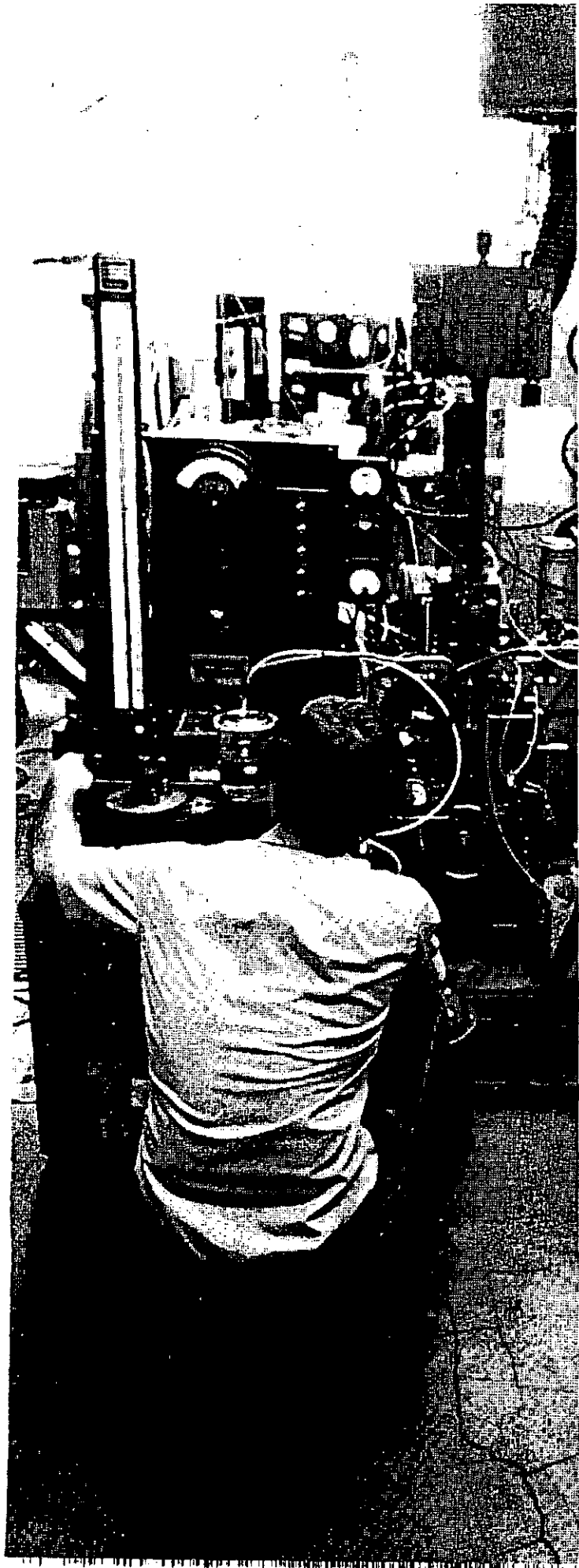
Wayne State University

5425 Second Avenue

Detroit, Michigan 48202

College of Engineering

DEAN: STANLEY K. STYNES



Foreword

THE PROFESSION OF ENGINEERING

Engineering requires men and women of imagination who can plan and create. Their creations include the laser and the transistor, communication networks, automotive safety devices, and systems of missile telemetry and astronautic life support. Engineers design and simplify, refine and economize. They are pragmatists serving the needs of mankind through continual reconstruction and improvement of man's surroundings. Engineers are responsible for the design and construction of energy generating and distribution systems, air and water pollution control projects, as well as transportation systems and the vehicles required by our mobile society. From the engineers must come anti-skid devices for hard-braked automobiles, tornado-busters, fire-resistant homes, and "eyes" for the blind. The engineer's resources include an intimate knowledge of scientific laws and engineering applications and methodology, an ability to use mathematics and the high speed computer, and above all an imagination and inquiring mind.

Engineers do not devote their attention solely to the wonders of technology. They look beyond their inventions and conceptions to consider the societal impact of what they do. For example, engineering which is solely concerned with mass production may reap economic gain at the expense of diminishing employment opportunities. In a related instance, consideration only for functional design can lead to the proliferation of ugliness in a mass market.

Engineering has become a principal gateway leading to top management positions. As more and more of the decisions of management in government and business are based on technical considerations, engineers with the necessary background are called upon to make these decisions.

At present, the minimum education required for general recognition of competence to practice engineering is a four-year collegiate program leading to a bachelor's degree in one of the fields of engineering. However, many engineering positions require an additional year of education at the graduate level leading to the master's degree. Whenever possible, students are urged to continue their education to this point. For engineering research or teaching and in some areas of practice, the doctor's degree is recommended.

For all engineers, continuing professional competence in the midst of our constantly changing technology requires educational renewal and a life-long dedication to continuing education. The College offers seminars, institutes, and off-campus programs designed to meet this need. In addition, regular College courses are available on an elective post-degree basis.

The Engineering Technologist

The evolution of our civilization has always been closely associated with technology and science. Now, and in the future, this association will become even more important. New knowledge has inspired advances in technology, result-

ing in new career opportunities. Far-reaching developments have been made in communications and instrumentation technology. Highly sophisticated machine tools and manufacturing processes have come into being. New energy sources and new man-made materials have been developed. Computer applications have revolutionized the techniques of industrial manufacturing and management.

This on-going expansion of scientific and engineering knowledge has changed the make-up of the engineering team with the inclusion of the engineering technologist. The engineering technologist, in cooperation with the engineer, organizes the men, materials, and equipment to design, construct, operate, maintain, and manage technical engineering projects. He or she should have a commitment to that technological progress which will create a better life for everyone.

Because of the extensive variety of functional opportunities, and the wide variety of the industrial enterprises available to the engineering technologist, there has been a great deal of specialization. An engineering technologist can specialize in three related ways: discipline, function, and industry. For example, the discipline could be mechanical, the function could be design, and the industry could be automotive; or the discipline could be electrical, the function field installation, and the industry electric power generation.

If a person has an above average intellect, a desire for accomplishment, and an ability to distinguish and organize essential factual data, then engineering technology is a field he or she should seriously consider. The field is definitely broad enough to accommodate a wide range of talent.

DEGREES OFFERED

The College of Engineering is made up of two divisions, the Division of Engineering and the Division of Engineering Technology.

The Division of Engineering offers the Bachelor of Science degree and the Master of Science degree in chemical, civil, electrical, industrial, mechanical, and metallurgical engineering. The Doctor of Philosophy degree is also offered through the Graduate Division with majors in chemical, civil, electrical and computer, industrial, mechanical, and metallurgical engineering. For graduate degree information, see page 141.

The Division of Engineering Technology offers the degree of Bachelor of Engineering Technology with specialization in electrical/electronic engineering technology, manufacturing/industrial engineering technology, mechanical engineering technology, and quality control engineering technology. For information concerning the Engineering Technology Program, see page 174.

ACCREDITATION

In addition to accreditation of Wayne State University by the North Central Association of Colleges and Secondary Schools, all the undergraduate curricula of the Division of Engineering leading to a Bachelor of Science degree are accredited by the

Engineers' Council for Professional Development. The Council is composed of representatives of eleven national engineering societies and of the American Society for Engineering Education. Curriculum accreditation is based upon careful periodic appraisal of the faculty, educational program, and facilities of the College. This stamp of approval provides assurance of an up-to-date, high quality education pertinent to the engineering profession.

LOCATION OF THE COLLEGE

The College is located in the heart of Detroit, Michigan, the acknowledged world capital of automotive engineering and production. This industrial center provides a wealth of examples of modern engineering practice and opportunities to explore the latest in vehicle design and production, automation design, steel production, transportation, planning, hydraulic and pneumatic controls, electric power generation, and computer design and production. The many industries of Southeastern Michigan provide engineering students with rich and varied work experiences through full or part time employment or through the Cooperative Program described on page 140.

The College is affiliated with twelve other schools and colleges of Wayne State University. The University setting, with its some 34,000 students, provides a broad selection of educational opportunities on an interdisciplinary basis.

COLLEGE FACILITIES

In addition to the library and general resources of the University, the College of Engineering itself has 135,000 square feet of classroom, office, and laboratory space. Included in the three-story Engineering Building are general undergraduate laboratories, departmental laboratories, and research laboratories. The general undergraduate laboratories provide facilities in fluid mechanics, thermal sciences, system dynamics, statistical computation and materials science. These are available for experimentation and research in connection with the undergraduate curricula on a college-wide basis. The laboratories are appropriate for either individual experimentation or group projects.

The College also has laboratories associated with departmental engineering specializations such as: chemical measurements; chemical processing; metallurgical measurements; metallurgical processing; electron microscopy; soil mechanics; sanitary engineering; roadway and building materials; structural modeling; communications; electronics; microwaves, holography and lasers; automotive; human factors; and stress analysis. These laboratories are used for instructional and research purposes along with such research facilities as a molecular beam laboratory and a biomechanics accelerator and impact laboratory.

Available to all engineering and engineering technology students are electronic calculators, remote time-sharing computer terminals; a machine shop, a model shop, a photographic darkroom; design rooms; and audio-visual carrels. Mini-computers are also available for special projects.

The Technical Services unit of the College provides support for the various instructional and research laboratories in the construction, modification, repair calibration and installation of experimental equipment. In addition, the Technical Services unit offers sophisticated assistance in the design of electronic and instrumentation equipment and devices.

The College of Engineering offers several courses in the area of Bioengineering. Many of these are cross-listed among the various departments and descriptions of their content can be found under *Courses of Instruction* beginning on page 148 of this bulletin. Students interested in majoring in this area, particularly at the graduate level, should consult their adviser for further information.

ADMISSION AND REGISTRATION

Students should refer to pages 143-145 for information regarding the admission and registration procedures.



DIVISION OF ENGINEERING

Undergraduate Degree Programs

The College of Engineering awards the Bachelor of Science degree in:

Chemical Engineering	Industrial Engineering
Civil Engineering	Mechanical Engineering
Electrical Engineering	Metallurgical Engineering

The normal amount of credit required for each of these degrees is 192 credits based on the curricular plans shown in this section.

Students must qualify in mathematics, chemistry and English to begin their programs of study as specified in the various curricula. Please refer to the Qualifying Examination section, page 143, and to the English Proficiency section, page 140, for further information.

On occasion students may find it convenient or necessary to strengthen their background in English and mathematics through the election of courses which do not count toward the engineering degree. Students should consult their departmental adviser for guidance in this matter.

The University defines normal progress toward graduation as forty-five credits in twelve months. Hence, the engineering student making normal progress toward the degree, will require four and one-third years to achieve 192 credits. A student who elects the Cooperative Professional Development Program (see Program Planning, page 139) will require five years.

Of the total credits for the degree, at least the last forty-five credits must be completed while in this College.

An engineering student, who after receiving one Bachelor of Science degree at Wayne State University, wishes to obtain a second bachelor's degree must complete at least forty-five credits beyond those applied toward the first degree and must also satisfy all departmental and College course requirements.

An inspection of the various engineering curricula, which begins on page 129, will reveal that the first two years in all of the programs are quite similar. However, variations do begin to appear in the sophomore year.

In general, entering freshmen are encouraged to register in one of the degree granting departments. However, if undecided as to a particular curriculum, the student may register as an "undecided student." If the undecided status is elected, the student is encouraged to pursue career counseling during the freshman year. Assistance can be obtained from the Dean's Office, Room 141 of the Engineering Building. When a decision is reached, the student is assigned to the appropriate department. Students are strongly encouraged to reach a decision prior to the completion of the freshman year.

During the freshman and sophomore years, the student acquires a lasting foundation in the basic sciences, mathematics, and the engineering sciences. Throughout the entire program, a continuing general education in the social science and humanities areas is included.

Please refer to page 140 for information regarding the Division of Engineering requirement in English composition proficiency.



ENGINEERING CURRICULA

CHEMICAL ENGINEERING

Office: 128 Engineering Building

Chairman: R. H. Kummler

Associate Chairman: J. M. McMicking

PROFESSORS

C. L. Corey, H. G. Donnelly, E. R. Fisher, R. H. Kummler, R. Marriott, E. W. Rothe, S. K. Stynes

ASSOCIATE PROFESSORS

J. Jorne, C. B. Leffert, J. H. McMicking, R. W. Mickelson

ADJUNCT PROFESSOR

H. Trieschman

The field of the chemical engineer embraces those industries in which matter is treated to effect a change of state, energy content, or composition; and in these industries he may be concerned with either the processes or the process equipment used for them.

More specifically, the chemical engineer may enter the fields of fuels and petroleum processing; heavy, fine, and pharmaceutical chemicals; textiles and fibers, food processing and products; natural and synthetic rubbers and plastics; explosives; pulp and paper; cements and building materials; surface coatings; disposal of chemical plant wastes; atomic energy processes; and environmental control.

The curriculum in chemical engineering covers material and energy balances, principles of unit operations and unit processes encountered in many industries, and principles of chemical process and equipment design.

The breadth of this program permits a graduate to enter the chemical industries with confidence that his abilities will find almost immediate use. He may enter the division of production and advance toward plant or production management positions; or he may find his training will be utilized successfully in design, development, or research departments. In the latter cases additional formal education at the graduate level may be desirable. Chemical engineers with master's or doctor's degrees constitute a large percentage of those employed in research and development work.

The chemical engineer with his broad knowledge of chemistry feels confident of his ability to take the products of research from the chemist and translate them with the benefit of his education into commercially valuable production processes. Through his development work on the pilot plant scale, he may produce the ultimate design of a full-scale plant.

Chemical Engineering Curriculum

Freshman Year

<i>First Quarter</i>		<i>credits</i>
Mathematics 0211	Calculus of Functions of One Var. I	4
Chemistry 0107	Principles of Chemistry I	4
Socio-Humanistic Studies 0131	Society and the Economic Transition	4
Socio-Humanistic Elective		4
		16

Second Quarter

Mathematics 0215	Calculus of Functions of One Var. II	4
Chemistry 0108	Principles of Chemistry II	5
Socio-Humanistic Studies 0136	Social and Economic Contexts of Tech.	4
Industrial Engg. 0202	Probabilistic Methods in Engg.	4
		17

Third Quarter

Mathematics 0212	Calculus of Functions of Several Var. I	4
Physics 0217	General Physics	4
Socio-Humanistic Studies 0137	Topics in the Impact of Technology	4
Metallurgical Engg. 0130	Science of Engineering Materials	4
		16

Sophomore Year

First Quarter

Mathematics 0214	Calculus of Functions of Several Var. II	4
Physics 0218	General Physics	4
Computer Science 0285	Introduction to Digital Computing	4
Chemistry 0224	Organic Chemistry I	4
		16

Second Quarter

Mathematics 0213	Elementary Linear Algebra	4
Physics 0219	General Physics	4
Chemistry 0226	Organic Chemistry II	4
Mechanical Engg. 0240	Statics	4
		16

Third Quarter

Mathematics 0519	Differential Equations	4
Chemical Engg. 0220	Introductory Thermodynamics	4
Chemical Engg. 0280	Material and Energy Balances	4
Metallurgical Engg. 0260	Structure & Properties of Metals	4
		16

Junior Year

First Quarter

Chemical Engg. 0320	Chemical Process Engg. I: Fluid Flow	3
Chemical Engg. 0358	Chemical Equilibria	4
Mechanical Engg. 0310	Strength of Materials I	4
Chemistry Technical Elective		3
English 0309	Technical Report Writing I	3
		17

Second Quarter

Chemical Engg. 0350	Chemical Process Engg. II: Heat Transfer	3
Chemical Engg. 0352	Measurements Laboratory	3
Chemistry 0542	Chemical Dynamics	3
Chemical Engg. 0304	Computational Methods in Engineering	4
English 0309	Technical Report Writing II	3
		16

Third Quarter

Chemical Engg. 0380	Chemical Process Engg. III: Mass Transfer	4
Chemical Engg. 0382	Chemical Engineering Laboratory	3
Chemical Engg. 0388	Kinetics and Reactor Design	4
Chemistry 0412	Quantitative Analytical Chemistry	4
		15

Senior Year

First Quarter

Chemical Engg. 0420	Chem. Process Engg. IV: Econ. & Design	4
Chemical Engg. 0460	Process Dynamics and Simulation	3
Chemical Engg. 0426	Chemical Engg. Research: Organization	2
Elect. & Comp. Engg. 0301	Introduction to Electrical Circuits	4
Chemical Engineering Technical Elective		3
		16

Second Quarter

Chemical Engg. 0450	Chemical Process Integration	3
Chemical Engg. 0456	Chemical Engg. Research: Investigation	4
Socio-Humanistic Elective		4
Chemistry/Chemical Engg. Technical Electives		4
		15

Third Quarter

Chemical Engg. 0486	Chemical Engineering Research: Report	2
Socio-Humanistic Elective		4
Chemical Engg. Technical Elective (Design)		4
Technical Elective		7
		17

total credit hours 193

At least five credits of Physical Chemistry including Chemistry 0542 must be taken. Twenty-three credits in advanced chemistry are required (to include no more than four credits in chemical engineering chemistry-related courses).

CIVIL ENGINEERING

Office: 667 Merrick

Chairman: J. H. Lamb, Jr.

PROFESSORS

L. T. Cheney, D. S. Ling (Emeritus), D. Newton (Emeritus),
C. J. Ordon, J. M. Paulson

ASSOCIATE PROFESSORS

T. K. Datta, J. H. Lamb, Jr., C. W. Lewitt

ASSISTANT PROFESSORS

W. Caldwell-Johnson, D. Hsu, S. Khasnabis, A. F. Somogyi

ADJUNCT PROFESSOR

A. Zweig

The urban crisis in America has brought into sharp focus the profession of civil engineering and the responsibilities of its practitioners. The civil engineer is a leader in such diverse areas of concern as water resources planning; the collection, treatment and distribution of pure, potable water; the treatment and ultimate disposal of noxious solid and liquid wastes; design of building systems which will provide adequate housing for urban dwellers, commerce and industry; development of adequate transportation systems and facilities for our burgeoning urban society; construction methods and management. Obviously, the responsibilities of the civil engineer directly involve the health, safety and welfare of the public. The educational experience of the civil engineer must provide a thorough grounding in the relevant fundamentals, the application of these fundamentals to practice and the decision making processes required to design and construct large complex systems.

The civil engineering curriculum has been designed to provide a broad education in the basic sciences, mathematics, and engineering sciences and their application to civil engineering practice in the areas of housing and structures, geotechnics transportation and environmental water resources. The courses in civil engineering may be considered as an array of groups, each group representing an area of concern to contemporary society and industry. Technical electives may be selected from one of these major areas according to the student's particular interest or he may prefer to choose them in several areas in order to broaden his knowledge. A student who contemplates continuing his studies at the graduate level should seek the advice of his faculty counselor in the selection of elective courses. Realizing the social implications of the practice of civil engineering, the program provides for the development of a background in economics, the social sciences, humanities and related non-technical areas.

Civil Engineering Curriculum

Freshman Year

<i>First Quarter</i>		<i>credits</i>
Mathematics 0211	Calculus of Functions of One Var. I	4
Chemistry 0107	Principles of Chemistry I	4
Socio-Humanistic Studies 0131	Society and the Economic Transition	4
Socio-Humanistic Elective		4
		16

Second Quarter

Mathematics 0215	Calculus of Functions of One Var. II	4
Science Elective		4
Socio-Humanistic Studies 0136	Social and Economic Contexts of Tech.	4
Socio-Humanistic Elective		4
		16

Third Quarter

Mathematics 0212	Calculus of Functions of Several Var. I	4
Physics 0217	General Physics	4
Socio-Humanistic Studies 0137	Topics in The Impact of Technology	4
Science Elective		4
		16

Sophomore Year

First Quarter

Mathematics 0214	Calculus of Functions of Several Var. II	4
Physics 0218	General Physics	4
Computer Sci. 0285	Introduction to Digital Computing	4
Mechanical Engg. 0240	Statics	4
		16

Second Quarter

Mathematics 0213	Elementary Linear Algebra	4
English 0309 I	Technical Report Writing I	3
Mechanical Engg. 0310	Strength of Materials I	4
Science Elective		4
		15

Third Quarter

Mathematics 0519	Differential Equations	4
English 0309 II	Technical Report Writing II	3
Mechanical Engg. 0330	Fluid Mechanics I	4
Elect. & Comp. Engg. 0304	Computational Methods in Engineering	4
		15

Junior Year

First Quarter

Civil Engg. 0401	Civil Engineering Analysis	4
Civil Engg. 0445	Civil Engineering Materials I	4
C E 0430	Structures I	4
Elect. & Comp. Engg. 0202	Probabilistic Methods in Engg.	4
		16

Second Quarter

Civil Engg. 0434	Structures III	4
Economic Analysis		4
Mechanical Engg. 0340	Dynamics I	4
Socio-Humanistic Elective		4
		<hr/> 16

Third Quarter

Civil Engg. 0421	Water Resources	4
Civil Engg. 0433	Structures II	4
Civil Engg. 0446	Civil Engineering Materials II	4
Civil Engg. 0560	Transportation Engineering I	4
		<hr/> 16

Senior Year

First Quarter

Engg. Science Elective		4
Civil Engg. 0452	Engineering Properties of Soils	4
Civil Engg. 0521	Environmental Engineering	4
Civil Engg. 0567	Transportation Engineering II	4
		<hr/> 16

Second Quarter

Civil Engg. Design		12
Technical Elective		4
		<hr/> 16

Third Quarter

Technical Electives		18
		<hr/> 18
<i>total credit hours</i>		192

Science Electives—Civil Engineering students, including those who will take Chemistry 0105 (six credits), must elect *at least* twelve credit hours from the following list of science electives: Chemistry 0108, Chemistry 0110, Physics 0219, Physics 0220, Biology 0103, Biology 0187, Geology 0101, Geology 0102.

Engineering Science Electives—Civil Engineering students are required to complete *at least* four credit hours of engineering science electives. Consult your faculty adviser for specific recommendations.

Technical Electives—Economic Analysis — CE 0605 or IE 0587. Consult your faculty adviser for specific recommendations.

ELECTRICAL AND COMPUTER ENGINEERING

Office: 306 Engineering Building

Chairman: Mohammed S. Ghausi

Associate Chairman: Roy O. Sather

PROFESSORS

R. D. Barnard, F. E. Brammer, T. Feng, M. S. Ghausi, H. M. Hess (Emeritus), J. Meisel, R. O. Sather, M. B. Scherba, M. P. Shaw, F. T. S. Yu

ASSOCIATE PROFESSORS

K. Hwang, J. C. Lin, John J. Metzner, E. Y. Wang

ASSISTANT PROFESSORS

M. Chien, R. F. Erlandson, P. Jahanian, A. J. Lightman, R. P. Roesser, A. Sen

ADJUNCT PROFESSORS

M. C. Steele, C. Wang, E. N. Petrick

ADJUNCT ASSISTANT PROFESSORS

T. Bauld, M. S. Moskowitz

In the field of electrical and computer engineering, basic physical and mathematical principles have been utilized to develop exciting new devices, technologies and techniques of constantly broadening application facing the electrical and computer engineer with many challenges. Examples are the development, stemming from advances in solid state and integrated circuit technology, of smaller, cheaper and more powerful large computers, minicomputers, microprocessors, and other data processors, and their utilization in a growing range of system applications; the growing use of data communication and sophisticated satellite communication systems; the discovery of lasers and the development of fiber optic and integrated electro-optic devices for application to video transmission through optical fibres, optical data processing and communication, and other fields; development of sophisticated control techniques, remote sensors and transducers for advanced automation and electric power systems; the growing application of electronics to health care and diagnostics (such as noninvasive measurements and ultrasound imaging); energy conversion devices such as solar cells.

The areas of study available in the department include: solid-state devices, microwaves, quantum electronics, lasers, information sciences, digital circuits, computer engineering, integrated and active circuits, energy conversion and electric power systems, bioengineering, and modern control theory. Programs of both experimental and theoretical study are available in all these areas as well as other interdisciplinary programs through the Electrical and Computer Engineering Department.

Research is carried out in the department in control theory, computer engineering, electric power systems, active and non-linear networks, bioengineering, lasers, holography, digital communication systems, digital circuits, semiconductor electronics, solid-state crystalline and amorphous devices, and energy conversion devices. Senior students are encouraged to participate in research activities by means of independent study projects and student assistantships. Graduate students normally participate in the research program as graduate assistants and research assistants. A more detailed picture of the research activities in the department is provided by a descriptive brochure available from the departmental office.

A common departmental core curriculum of approximately sixty-three credits is indicated below. A minimum of twenty credits of Electrical and Computer Engineering electives must be taken in addition to the core courses. These electives, normally taken during the last year of undergraduate study, are chosen by the student with the guidance of his faculty adviser. As soon as a student enters the first departmental course in Electrical and Computer Engineering, he or she is assigned to an individual faculty adviser. It is the responsibility of the adviser to help the student to identify career objectives, and plan his or her curriculum accordingly.

Electrical and Computer Engineering Curriculum

Freshman Year

<i>First Quarter</i>	<i>credits</i>
Mathematics 0211 Calculus of Functions of One Var. I.....	4
Chemistry 0107 Principles of Chemistry I	4
Socio-Humanistic Studies 0131 Society and the Economic Transition.....	4
Elect. & Comp. Engg. 0100. Introduction to Elect. & Comp. Engg.....	3
	15

Second Quarter

Mathematics 0215 Calculus of Functions of One Var. II... 4	4
Socio-Humanistic Studies 0136 Social and Economic Contexts of Tech... 4	4
Science Elective	4
Socio-Humanistic Elective	4
	16

Third Quarter

Mathematics 0212 Calculus of Functions of Several Var. I... 4	4
Physics 0217 General Physics—(Lab-1 credit optional). 4, 5	4, 5
Socio-Humanistic Studies 0137 Topics in The Impact of Technology..... 4	4
Science Elective	4
	16, 17

Sophomore Year

First Quarter

Mathematics 0214 Calculus of Functions of Several Var. II... 4	4
Physics 0218 General Physics	4, 5
Computer Science 0285... Introduction to Digital Computing	4
Socio-Humanistic Elective	4
	16, 17

Second Quarter

Mathematics 0213 Elementary Linear Algebra	4
English 0309 Technical Report Writing I	3
Elect. & Comp. Engg. 0202. Probabilistic Methods in Engineering.....	4
Science Elective	4
	15

Third Quarter

Mathematics 0519 Differential Equations	4
English 0309 Technical Report Writing II	3
Elect. & Comp. Engg. 0301. Introduction to Electrical Circuits	4
Engg. Science Elective	4
	15

Junior Year

First Quarter

Elect. & Comp. Engg. 0302. Electrical Circuits Lab I	2
Elect. & Comp. Engg. 0331. Network Analysis I	4
Elect. & Comp. Engg. 0350. Introduction to Physical Electronics	4
Engg. Science Elective	4
Technical Elective	3
	17

Second Quarter

Elect. & Comp. Engg. 0304. Computational Methods in Engineering... 4	4
Elect. & Comp. Engg. 0351. Electronic Circuits I	4
Elect. & Comp. Engg. 0431. Network Analysis II	4
Technical Elective	4
	16

Third Quarter

Elect. & Comp. Engg. 0352. Electronics Lab I	2
Elect. & Comp. Engg. 0381. Electromagnetic Fields and Waves I 4	4
Elect. & Comp. Engg. 0451. Electronic Circuits II	4
Engg. Science Elective	4
Technical Elective	3
	17

Senior Year

First Quarter

Elect. & Comp. Engg. 0441. Electromechanical Energy Conversion... 4	4
Elect. & Comp. Engg. 0458. Fundamentals of Logic Design	4
Elect. & Comp. Engg. 0481. Electromagnetic Fields and Waves II... 4	4
Technical Elective	4
	16

Second Quarter

Elect. & Comp. Engg. 0447. Control Systems	4
Elect. & Comp. Engg. 0477. Introduction to Communication Theory... 4	4
Socio-Humanistic Elective	4
Technical Elective	4
	16

Third Quarter

Elect. & Comp. Engg. 0400 ¹ Electrical Engg. Lab or Project	2
Technical Electives	12-14
	14-16
<i>total credit hours</i>	191

¹ Laboratory project for students with an honor point average of B or better.

Science Electives — Recommended Science Electives for Electrical and Computer Engineering students are Chemistry 0108, Chemistry 0110, Physics 0219, Physics 0220, and Biology 0103.

Engineering Science Electives — A total of twenty credits of Engineering Science Electives and Technical Electives outside the Electrical and Computer Engineering are required.

Technical Electives — A minimum of twenty credits of Electrical and Computer Engineering electives are required. Consult your faculty adviser for specific recommendations.

Laboratory Requirements — Six credits of Electrical and Computer Engineering laboratory are required. Two credits of Physics laboratory and a two credit Electrical and Computer Engineering laboratory project are recommended.



INDUSTRIAL ENGINEERING AND OPERATIONS RESEARCH

Office: 640 Putnam

Chairman: J. M. Christensen

PROFESSORS

J. M. Christensen, A. W. Jones, H. Allan Knappenberger, K. H. E. Kroemer

ASSOCIATE PROFESSORS

K. C. Kapur, L. R. Lamberson, H. G. Ludwig, R. R. Mourant, V. K. Sahney

ASSISTANT PROFESSORS

K. R. Chelst, E. Moussa-Hamouda, R. E. Young

The challenge of industrial engineering is the design of systems to produce products and provide services which are useful to mankind. Although the word industrial suggests that this engineer works only in manufacturing industries, the talents of industrial engineers are equally valuable to hospitals, government agencies, commercial and financial institutions, or any other organization that produces a product or provides a service.

In manufacturing organizations the industrial engineer is involved in the design of a wide variety of systems. These systems may be as small as a work station consisting of one man and a machine; they may be slightly larger systems involving several men and machines; they may involve an entire plant including the systems to control the production, inventory and quality of large numbers of complex products.

The skills which the industrial engineer uses to design manufacturing systems are also useful in the design of better systems to care for hospital patients, provide faster and more accurate mail distribution, provide fast and accurate airline reservations, control large space projects, and reduce air and water pollution. Industrial engineers are being called upon in increasing numbers to design systems which provide services beneficial to society at a cost which man can afford.

There are many similarities in the academic preparation of various types of engineers. All engineers are required to take courses in mathematics, physics, chemistry, mechanics, materials, and electricity. There are also important differences in the academic preparation for each of the engineering disciplines. Since many of the systems of concern to the industrial engineer involve a human component, an understanding of the physiological and psychological capabilities of man is important. Thus, the industrial engineering curriculum includes courses in human performance. The presence of a human component in most industrial engineering systems and the size of systems as large as an entire industrial organization greatly complicate the problem of analysis and design.

such systems. To cope with this increased complexity, a special set of mathematical tools and a methodology have emerged in recent years. This new body of knowledge has been labeled operations research. Its importance to the discipline of industrial engineering is reflected by the inclusion of the words operations research in the name of the department.

It is the goal of the undergraduate program to prepare young men and women to accept the challenge which exists for industrial engineers in a wide variety of manufacturing and service organizations.

In addition to the undergraduate program, the Department offers a wide variety of professional and research graduate programs culminating in a Master of Science or a Doctor of Philosophy degree.

Second Quarter

Mathematics 0213	Elementary Linear Algebra	4
Science Electives		8
Engineering Science Elective		4
English 0309	Technical Report Writing I	3
		<hr/> 19

Third Quarter

Mathematics 0519	Differential Equations	4
Engineering Science Elective		4
English 0309	Technical Report Writing II	3
Socio-Humanistic Elective		4
		<hr/> 15

Industrial Engineering Curriculum

Freshman Year

First Quarter		<i>credits</i>
Chemistry 0107	Principles of Chemistry I	4
Mathematics 0211	Calculus of Functions of One Variable I ..	4
Socio-Humanistic Studies 0131	Society and the Economic Transition ...	4
Socio-Humanistic Elective		4
		<hr/> 16

Second Quarter

Mathematics 0215	Calculus of Function of One Variable II ..	4
Socio-Humanistic Studies 0136	Social and Economic Contexts of Tech...	4
Science Elective		4
Socio-Humanistic Elective		4
		<hr/> 16

Third Quarter

Mathematics 0212	Calculus of Functions of Several Var. I ..	4
Physics 0217	General Physics	4
Socio-Humanistic Studies 0137	Topics in The Impact of Technology ...	4
Industrial Engg. 0210	Introduction to Systems Engineering ...	4
		<hr/> 16

Sophomore Year

First Quarter

Mathematics 0214	Calculus of Functions of Several Var. II ..	4
Physics 0218	General Physics	4
Computer Science 0285	Introduction to Digital Computing	4
Industrial Engg. 0202	Probabilistic Methods in Engineering ...	4
		<hr/> 16

Junior Year

First Quarter *credits*

Engineering Science Electives		8
Industrial Engg. 0450	Industrial Organization	4
Industrial Engg. 0554	Foundations of Reliability and Quality Assurance	4
		<hr/> 16

Second Quarter

Elect. & Comp. Engg. 0301	Introduction to Electrical Circuits	4
Industrial Engg. 0587	Engineering Economy	4
Industrial Engg. 0555	Engineering Data Analysis	4
Engineering Science Elective		4
		<hr/> 16

Third Quarter

Elect. & Comp. Engg. 0302	Electrical Circuits Laboratory I	2
Industrial Engg. 0511	Introduction to Human Factors Engineering	4
Industrial Engg. 0556	Operations Research I	4
Industrial Engg. 0562	Experimental Design	4
Engineering Science Elective		4
		<hr/> 18

Senior Year

First Quarter

Industrial Engg. 0512	Work Measurement	4
Industrial Engg. 0521	Systems Engineering	4
Industrial Engg. 0532	Production Control	4
Industrial Engg. 0557	Operations Research II	4
		<hr/> 16

Second Quarter

Industrial Engg. 0533	Facilities Design	4
Industrial Engg. 0582	Senior Design Project I	4
Industrial Engg. 0613	Simulation Methods	4
Technical Elective		4
		<hr/> 16

Third Quarter

Industrial Engg. 0583... Senior Design Project II	4
Technical Electives	8
	<hr/>
	12
<i>total credit hours</i>	192

Science Electives — Industrial Engineering students, including those who take Chemistry 0105 (six credits), must elect *at least* twelve credit hours from the following list of science electives: Biology 0103, 0187; Chemistry 0108, 0110; Physics 0219, 0220; Physiology 0322.

Engineering Science Electives — In addition to Electrical and Computer Engineering 0301 and 0302, all industrial engineering students must elect *at least* twenty-four credits of engineering science electives from two Engineering departments other than Industrial Engineering and Operations Research and Electrical and Computer Engineering. Consult your faculty adviser for specific recommendations.

Technical Electives — Consult your faculty adviser for specific recommendations.



MECHANICAL ENGINEERING

Office: 667 Merrick

Acting Chairman: N. A. Hencin

Associate Chairman: J. P. Lee

PROFESSORS

C. N. DeSilva, N. A. Hencin, A. R. Hochstim, G. H. Howell, R. M. Jamison (Emeritus), A. I. King, K. A. Kline, J. P. Lee, D. L. Perkins (Emeritus), R. A. Picciarelli, G. E. Rivers (Emeritus), H. K. Sachs

ASSOCIATE PROFESSORS

S. Carmi, H. P. Hale, V. H. Kenner, M. G. Koenig, D. P. L alas, G. P. Loweke (Emeritus), D. Orne, T. Singh, A. B. Whitman, E. C. Zobel

ASSISTANT PROFESSOR

R. Cheng

ADJUNCT PROFESSOR

L. M. Patrick

ADJUNCT ASSOCIATE PROFESSORS

F. Einandi, R. S. Levine

The field of mechanical engineering encompasses a broad variety of career possibilities dealing with design analysis and synthesis, research and development, and the manufacturing of a multitude of products. Combustion engines, different types of vehicles, earth-movers, automatic transfer machines and orthopedic mechanisms are all in the realm of the mechanical engineer. His challenge lies in the perfection of a device that will be duplicated a million-fold, or in the control optimization of a single complex system of unique dimensions.

The curriculum in mechanical engineering emphasizes both scientific principles and the application of these principles through modern engineering methodology, for example, the teaching of exact analytical techniques, approximate and numerical methods, computer modeling, and systems analysis and synthesis. The emphasis, therefore, is not on the detailed presentation of technology but on a firm understanding of the basic concepts of modern science. Built upon the foundation of the first years is a core of mechanical engineering courses which strengthens the background and training of the student and develops problem solving skills. The curriculum allows the student flexibility in choosing technical electives in his senior year. Technical electives may be chosen in one of several areas of specialization which will lead the student into the creative use of his technical skills. Theoretical background acquired in the sequel of course subjects is complimented by experimental work on research projects conducted by the faculty with the assistance of senior undergraduate and graduate students.

Mechanical Engineering Curriculum

Freshman Year

First Quarter

Mathematics 0211	Calculus of Functions of One Variable I	4
Chemistry 0107	Principles of Chemistry I	4
Socio-Humanistic Studies 0131	Society and the Economic Transition	4
Socio-Humanistic Elective		4
		<hr/> 16

Second Quarter

Mathematics 0215	Calculus of Functions of One Variable II	4
Science Elective		4
Socio-Humanistic Studies 0136	Social and Economic Contexts of Tech.	4
Socio-Humanistic Elective		4
		<hr/> 16

Third Quarter

Mathematics 0212	Calculus of Functions of Several Var. I	4
Physics 0217	General Physics	4, 5
Socio-Humanistic Studies 0137	Topics in The Impact of Technology	4
Science Elective		4
		<hr/> 16, 17

Sophomore Year

First Quarter

Mathematics 0214	Calculus of Functions of Several Var. II	4
Physics 0218	General Physics	4, 5
Computer Science 0285	Introduction to Digital Computing	4
Socio-Humanistic Elective		4
		<hr/> 16, 17

Second Quarter

Mathematics 0213	Elementary Linear Algebra	4
Mechanical Engg. 0114	Engineering Graphics I	3
Mechanical Engg. 0240	Statics	4
Science Elective		4
		<hr/> 15

Third Quarter

Mathematics 0519	Differential Equations	4
Mechanical Engg. 0220	Thermodynamics I	4
Mechanical Engg. 0340	Dynamics	4
Metallurgical Engg. 0130	Science of Engineering Materials	4
		<hr/> 16

Junior Year

First Quarter

Electrical and Comp. Engg. 0301	Introduction to Electrical Circuits	4
Mechanical Engg. 0310	Strength of Materials	4
Mechanical Engg. 0320	Thermodynamics II	4
English 0309	Technical Report Writing I	3
		<hr/> 15

Second Quarter

Electrical and Comp. Engg. 0302	Electrical Circuits Laboratory I	2
Mechanical Engg. 0330	Fluid Mechanics I	4
Mechanical Engg. 0392	Fundamentals of Engineering Experimentation	3
Mechanical Engg. 0420	Heat Transfer	4
English 0309	Technical Report Writing II	3
		<hr/> 16

Third Quarter

Mechanical Engg. 0341	Vibrations	4
Mechanical Engg. 0348	Elements of Design I	4
Mechanical Engg. 0430	Fluid Mechanics II	4
Engg. Science Elective	Manufacturing Analysis	4
		<hr/> 16

Senior Year

First Quarter

Mechanical Engg. 0349	Elements of Design II	4
Mechanical Engg. 0410	Strength of Materials II	4
Mechanical Engg. 0503	Approximate Methods of Analysis I	4
Industrial Engg. 0514	Elements of Reliability and Quality Control	4
		<hr/> 16

Second Quarter

Mechanical Engg. 0352	Systems Design and Synthesis I	4
Mechanical Engg. 0440	Design and Control of Dynamic Systems	4
Mechanical Engg. 0393	Experimental Problems in Mechanical Engg. or Engineering Experimental Project	4
Technical Electives		5
		<hr/> 17

Third Quarter

Mechanical Engg. 0450	Systems Design and Synthesis II	4
Technical Electives		6, 7
Engineering Science Electives		6
		<hr/> 16, 17
	<i>total credit hours</i>	192

Technical Electives — A total of eleven or twelve credits of technical electives is required in Mechanical Engineering courses.

Science Electives — Mechanical Engineering students, including those who take Chemistry 0105 (six credits), must elect at least eleven credits from the following list of science electives: Biology 0103, Biology 0187, Chemistry 0108, Chemistry 0110, Geology 0101, Geology 0102, Physics 0219, Physics 0220. In addition at least one credit hour of Physics Laboratory must be completed by all Mechanical Engineering students.

Engineering Science Electives — A total of ten credits of engineering science electives must be taken in departments other than Mechanical Engineering. Consult your faculty adviser for specific recommendations.

¹ M E 0114 will be waived if the student passes the Engineering Graphics Proficiency Examination and a Technical Elective substituted therefore.

² Students are cautioned not to take M E 0310 later than the second quarter of the Junior year in order to be able to complete the design sequence courses M E 0348, 0349, 0352 and 0450 in time for graduation.

METALLURGICAL ENGINEERING

Office: 128 Engineering Building

Chairman: R. H. Kummler

Associate Chairman: W. L. Haworth

PROFESSORS

C. L. Corey, L. Himmel, P. K. Rol

ASSOCIATE PROFESSORS

W. L. Haworth, C. A. Nagler

ADJUNCT PROFESSOR

J. J. Harwood

Almost every problem in the complex technology of our industrial society is, at its core, a materials problem. Power generation by nuclear reactors, lighter and more crash-resistant automobiles, electronic device miniaturization, earth-orbiting satellites all depend on the development of new engineering materials or the improvement of well-tried ones. As a result, the ancient profession of metallurgy has been revolutionized in recent years. The metallurgical engineer must master the science that enables him to understand the behavior of metals and materials, their mechanical, optical, thermal, electrical and chemical properties and the internal structure that determines these properties. He can then apply his knowledge to the extraction of metals from their ores, processing of materials into useful products, or controlling and improving the properties themselves.

The metallurgical engineering curriculum combines the study of this relationship between the structure and properties of materials with the engineering aspect of metal production, fabrication and use. Elective courses offered during the senior year enable the student to follow his particular interests in detail, and a senior research and seminar sequence provides the opportunity for independent work with appropriate faculty guidance. Finally, the metallurgical engineer graduating and working in the Detroit area joins the highest concentration of his fellow professionals in the country.

A variety of courses is offered at the graduate level in programs leading to the M.S. and Ph.D. degrees in Metallurgical Engineering. The graduate and research programs in metallurgy and materials are described in more detail in a brochure available from the Department office.

Metallurgical Engineering Curriculum

Freshman Year

First Quarter

Mathematics 0211	Calculus of Functions of One Var. I	4
Chemistry 0107	Principles of Chemistry I	4
Socio-Humanistic Studies 0131	Society and Economic Transition	4
Socio-Humanistic Elective		3
		<hr/> 15

credits

Second Quarter

Mathematics 0215	Calculus of Functions of One Var. II	4
Chemistry 0108	Principles of Chemistry II	5
Socio-Humanistic Studies 0136	Social and Economic Contexts of Tech.	4
Industrial Engg. 0202	Probabilistic Methods in Engg.	4
		<hr/> 17

Third Quarter

Mathematics 0212	Calculus of Functions of Several Var. I	4
Physics 0217	General Physics	4
Socio-Humanistic Studies 0137	Topics in The Impact of Technology	4
Metallurgical Engg. 0130	Science of Engineering Materials	4
		<hr/> 16

Sophomore Year

First Quarter

Mathematics 0214	Calculus of Functions of Several Var. II	4
Physics 0218	General Physics	4
Computer Science 0285	Introduction to Digital Computing	4
English 0309	Technical Report Writing I	3
		<hr/> 15

Second Quarter

Mathematics 0213	Elementary Linear Algebra	4
Physics 0219	General Physics	4
Chemical Engg. 0220	Introductory Thermodynamics	4
English 0309	Technical Report Writing II	3
		<hr/> 15

Third Quarter

Mathematics 0519	Differential Equations	4
Chemical Engg. 0280	Material and Energy Balances	4
Mechanical Engg. 0240	Statics	4
Chemical Engg. 0304	Computation Methods in Engineering	4
		<hr/> 16

Junior Year

First Quarter

Metallurgical Engg. 0260	Structure and Properties of Metals	4
Metallurgical Engg. 0262	Structure and Properties of Metals Laboratory	2
Metallurgical Engg. 0358	Chemical Equilibria	4
Mechanical Engg. 0310	Strength of Materials I	4
Socio-Humanistic Elective		3
		<hr/> 17

credits

Second Quarter

Metallurgical Engg. 0300	X-Ray Metallurgy	4
Metallurgical Engg. 0330	Physical Metallurgy I	4
Metallurgical Engg. 0332	Physical Metallurgy Laboratory I	2
Elect. & Comp. Engg. 0301	Introduction to Electrical Circuits	4
Mathematics 0520	Vector Analysis	3
		<hr/> 17

Third Quarter

Metallurgical Engg. 0350.. Mechanical Behavior of Metals	4
Metallurgical Engg. 0360.. Physical Metallurgy II	4
Metallurgical Engg. 0362.. Physical Metallurgy Laboratory II	2
Elect. & Comp. Engg. 0302.. Electrical Circuits Laboratory I	2
Physics 0220	4
	<hr/>
	16

Senior Year

First Quarter

	<i>credits</i>
Metallurgical Engg. 0426.. Research: Organization	1
Metallurgical Engg. 0430.. Principles of Fabrication	4
Technical Electives	6
Socio-Humanistic Elective	6
	<hr/>
	17

Second Quarter

Metallurgical Engg. 0450.. Materials Selection and Design	4
Metallurgical Engg. 0456.. Research: Investigation	4
Technical Electives	8
	<hr/>
	16

Third Quarter

Metallurgical Engg. 0460.. Principles of Extractive Metallurgy	4
Metallurgical Engg. 0462.. Metallurgical Operations Laboratory	2
Metallurgical Engg. 0486.. Research: Report	2
Technical Elective	7
	<hr/>
	15

total credit hours 192

Technical Electives — A total of twenty-one credits of technical electives is required, of which at least twelve must be in Metallurgical Engineering.

DIVISION OF ENGINEERING Program Planning

In planning a program of studies, the sequences of courses shown in the preceding curricula may be modified provided course prerequisites are satisfied. Students may attend the University on either a full-time or a part-time basis. Twelve credits are considered by the University as a minimum full-time load. The maximum load is determined by the student's ability and available time. However, since a credit hour (credit) is defined as one class hour requiring about two hours of preparation per week carried through a quarter, the fifteen to eighteen credit programs shown in the curricular plans represent a full forty-hour academic work week. A three hour laboratory period is generally regarded as the equivalent of one credit.

Some courses may be offered only once a year; others may have multiple sections running every quarter. The University *Schedule of Classes*, published for each quarter, shows when and where the classes will meet and outlines registration procedures and times.

MATHEMATICS REQUIREMENT

Engineering students use mathematics as a tool in all engineering and science courses in their college curricula as well as later upon entry into the engineering profession. All prospective engineering students are encouraged to complete the number of units of mathematics stipulated in the section entitled Recommended High School Preparation, page 143. Ideally, engineering students elect the first course in calculus in their first freshman term, however, many incoming students are not prepared to begin the mathematics program with calculus and additional remedial coursework is necessary to strengthen the student's background. All students entering the Division of Engineering with no transfer credit in calculus must take the Mathematics Qualifying Examination. For further details, see page 143.

BASIC SCIENCE REQUIREMENT

All undergraduate engineering students are required to complete at least twenty-four credits (six courses) of basic science courses including Chemistry 0107, Physics 0217 and 0218. These three courses are required in all of the engineering curricula, and it should be noted that certain curricula require the completion of prescribed science laboratories. For those curricula where the remaining three courses are not specifically identified, science electives are required. At the end of each curriculum listing courses acceptable as science electives within that curriculum are identified.

Entering students ideally begin the basic science sequence of courses with Chemistry 0107. Election of this course, however, is dependent upon the successful completion of the Chemistry Qualifying Examination. For further information see page 143.

SOCIO-HUMANISTIC REQUIREMENT

Engineering today extends far beyond technical decisions. Far-reaching effects of man-made technology require the engineer to be aware of and sensitive to his social responsibilities. Studies involving the engineer in sociological, economic and aesthetic judgments are incorporated in the engineering program in order to insure an understanding beyond technical problems which will enable the complete engineer to make value judgments concerning the impact of this technology upon society.

The College has therefore included a program in the social sciences and the humanities as a part of all engineering curricula.

All entering freshmen students in the College of Engineering are required to complete a year-long sequence of courses for twelve credits in the general education program designed specifically for engineering students. These courses are designated in the various curricula listings as Socio-Humanistic Studies 0131, 0136 and 0137.

In addition, entering freshmen are required to complete at least twelve additional credits in socio-humanistic courses. These courses must be chosen so as to satisfy the University Requirement in American Government and the economics requirement of the College of Engineering.

University Requirement in American Government— See page 14.

Economics Requirement— At least one course in economics is required. Economics 0101 is recommended.

Transfer students should plan on completing twenty-four credits (sixteen semester credit hours) of acceptable socio-humanistic credits. Credits earned in the following subject areas are defined as acceptable: American and English literature, anthropology, economics, fine arts, intermediate or advanced foreign languages, geography, history, humanities, philosophy, political science, psychology, social science and sociology. Please note that credit in composition, art or music practice and other general education subjects that are identified with the development of a skill are not acceptable for transfer to fulfill the socio-humanistic requirement.

COMMUNICATION SKILLS REQUIREMENT

Six credits in communication skills are required of all students whose first registration in the College of Engineering occurred after the summer quarter 1974.

Specially designated sections of English 0309, entitled Technical Report Writing for Engineers I and II, are to be elected if the credit is earned at Wayne State University.

ENGLISH COMPOSITION PROFICIENCY

All students who are required to pass English 0095, English for Foreign Students, must also complete English 0130 without delay.

Please refer to page 144 for information concerning the determination of English requirements for entering students.

Each student is required to meet the English Proficiency Requirement in Composition. Completion of the courses, Technical Report Writing for Engineers I and II (offered as English 0309) with a grade of C or better will constitute satisfaction of this requirement. Please note that the above courses are required in each curriculum to satisfy degree requirements. If a student should fail to pass either of the above courses with a grade of C or better, the English Proficiency Examination in Composition must be taken. In the event that the student does not pass this examination, English 0208 must be elected and completed with a satisfactory grade. The requirement should be met prior to the end of the junior year. Students planning to take the English Proficiency Examination in Composition will find the examination schedule in the *Schedule of Classes* under the section for the English Language and Literature Department of the College of Liberal Arts.

ENGINEERING SCIENCE ELECTIVES

Each curriculum requires the completion of at least forty-eight credits of course work in engineering science including six courses in three departments other than the student's home department. Engineering science courses have their roots in mathematics and basic science and provide a bridge between basic science and professional engineering courses. In certain curricula, the engineering science courses are completely prescribed; in other cases, they are partially identified through the designation of engineering science electives. Specific departmental recommendations may appear at the end of the particular curriculum listing. Students should consult their academic adviser for specific recommendations.

TECHNICAL ELECTIVES

Technical electives may be chosen from the course offerings of the College of Engineering and the advanced science and mathematics courses of the College of Liberal Arts. Other courses, such as advanced courses in the School of Business Administration, may be elected with the approval of the academic adviser.

COOPERATIVE PROFESSIONAL DEVELOPMENT PROGRAM

Students who wish to enrich their education with on-the-job engineering experience may enroll in the Cooperative Professional Development Program. In this program full-time study terms are alternated with full-time work assignments in co-operating industries. The program may be entered in either the sophomore or junior years. Some students are employed in the winter-summer work terms and others in the fall-spring work terms. Most of the work assignments are in the Metropolitan Detroit area on a commuting basis. The "Co-op" program is available in all the undergraduate engineering curricula. A limited number of Co-op Scholarships are available to qualified incoming freshmen. Applications for these scholarships are available through the Co-op Coordinator, University Placement Office.

Each student may enroll for one academic course while on work assignment. This must be done with the approval of his academic adviser. Following each work assignment, the student must enroll in Basic Engineering 0250, Engineering Internship. This credit of work will not be counted toward graduation unless permission is specifically recommended by the department chairman. Each department is assigned a specific faculty member as academic adviser to all College Co-op students within that curriculum.

A report covering each work assignment is required of the student, and his performance on the job is rated by his industrial supervisor. Salaries and other benefits are paid for the time spent on each work assignment. For details and enrollment procedures, contact the College Co-op Coordinator.

TRANSFER PROGRAMS

An engineering transfer program to be taken at a community college acceptable to each of the engineering colleges in Michigan has been prepared by the Engineering College—Community College Liaison Committee. A brochure describing this transfer program is available from any community college or from the Office of the Dean, Room 141, Engineering Building.



ENGINEERING GRADUATE DEGREE PROGRAMS

For complete information regarding graduate rules and regulations, students should consult the Graduate Division section of this bulletin, beginning on page 19. The following additions and amendments pertain to the College of Engineering.

After receiving his credentials from the Office of Admissions, and before registration, the student should contact the graduate adviser in his major department for details of program planning and to discuss requirements and course work.

Graduate Advisers for Specific Departments

Chemical and Metallurgical Engineering: Dr. Edward F. Fisher, (Chemical Engg.) and Dr. W. Lance Haworth (Metallurgical Engg.), 128 Engineering Building

Civil Engineering: Dr. John H. Lamb, 667 Merrick Avenue

Electrical and Computer Engineering: Dr. Melvin Shaw, 306 Engineering Building

Industrial Engineering and Operations Research: Dr. Kailash C. Kapur, 640 Putnam Avenue

Mechanical Engineering: Dr. Ju-Pei Lee, 667 Merrick Avenue

GRADUATE COURSES

Graduate work is classified either as course work, in which students meet as a group, or as research. A student registered for eight to sixteen credits is considered full-time.

MASTER'S DEGREE PROGRAM

The degree of "Master of Science in (major field)" is offered in chemical, civil, electrical, industrial, mechanical and metallurgical engineering. The candidate may be recommended for a degree by a committee of not less than three regular graduate faculty members.

In addition to the minimum requirement for admission of an overall honor point average of 2.6 from an institution accredited by the Engineer's Council for Professional Development, an honor point average of 2.8 in all junior and senior year courses is required. Regular admission may also be granted to applicants with undergraduate degrees from regionally accredited institutions in engineering, physics, chemistry, mathematics and computer science who meet the equivalent of the above minimum standards. Additional course work will generally be required for such applicants.

The minimum requirement for the master's degree is forty-five credits under the following degree plans approved by the College:

Plan A consists of thirty-three credits in course work, twelve credits of thesis and a seminar or an oral presentation on the thesis research.

Plan C requires a minimum of forty-five credits. A thesis is not required. This plan is authorized only in selected areas.

Students should consult their respective departments regarding these plans, specific core requirements and the number of credits required for the degree.

MAJOR CREDITS

Credits earned in the student's major field are designated as major credits. Of the minimum of forty-five hours of credit required for the master's degree, eight must be in graduate courses in the major (0700 and 0800 series). Also, at least one-half of the course work, exclusive of thesis credit, must be in the major field.

MINOR-COGNATE CREDITS

A minimum of eight credits should be taken in areas other than the student's major.

CANDIDACY

Candidacy is an advanced rank which is recommended by the departmental adviser and authorized by the Engineering Graduate Officer upon evidence of the applicant's superior scholarship, appropriate personal qualities, and promise of professional competence. The applicant must exercise primary responsibility for advancing his rank to "candidate." Eligibility for candidacy is contingent upon the student having completed any prerequisites specified at the time of admission and filing an adviser-approved *Plan of Work* with the Engineering Graduate Officer. In preparing his *Plan*, the student should carefully evaluate his personal and professional objectives as well as all degree and departmental requirements. After the *Plan* has been filed, subsequent major changes must be approved by the adviser. Students enrolled in master's degree programs must file a *Plan of Work* by the time eighteen graduate credits have been earned, or subsequent registration may be denied. In most departments, candidacy should be authorized at this time, also. Approval of candidacy is a necessary but not sufficient requirement for a graduate degree.

THESIS DEGREE PLAN

Students who elect the thesis degree plan (Plan A) are required to file a thesis outline for approval by the adviser and the Engineering Graduate Officer before writing the thesis.

Information about the thesis style, format and number of copies required can be obtained from the adviser or the Engineering Graduate Officer.

DOCTOR OF PHILOSOPHY

The Doctor of Philosophy degree is offered by the College of Engineering in these major areas: chemical engineering, civil engineering, electrical engineering, industrial engineering,

mechanical engineering sciences and metallurgical engineering. More detailed information may be obtained by contacting the departmental advisers.

A minimum of 135 credits beyond the bachelor's degree is required for the Ph.D. program including forty-five credits for the dissertation. The student's overall honor point average must be 3.0 or better, and 3.2 in the last two years as an undergraduate student. Students who do not satisfy these minimum standards will not be considered for admission to the Ph.D. program until they have completed an M.S. degree and have earned an honor point average in courses taken for graduate credit which is not less than 3.5.

A student need not obtain the Master of Science degree as an intermediate step. If the student fails to meet the Ph.D. requirements, he may transfer the credits toward the Master of Science degree program after passing a qualifying examination.

Language requirements are tailored to the individual Ph.D. candidates needs and are specified by the advisory committee.

RESEARCH CENTERS

At the advanced undergraduate and graduate level, opportunities exist for students to participate in the programs of the research centers. The Research Institute for Engineering Sciences promotes multi-disciplinary research programs of science and engineering. Some of the current research includes non-equilibrium chemistry associated with molecular laser operation, the fundamental interactions between molecular systems, holographic fatigue studies, interface studies of crystalline and amorphous electronic devices and mathematical techniques involved in optimization of multivariable engineering problems.

The College of Engineering Energy Center provides a focal point for most energy related research in the College. Areas under study include the reaction kinetics modeling of processes for conversion of laser fusion neutron energy into substitute gaseous fuels, oil shale fossil energy into synthetic liquid fuels, and wood waste energy into chemical feed stocks and fuels; the modeling of enhanced combustion mechanisms for conventional and alternative fuels and the study of energy conservation techniques and alternative energy sources.

The Bio-engineering Center is an interdisciplinary research group within the College which provides government and industry with research data needed to improve safety devices in transportation vehicles to reduce the death toll on highways and airways. Other studies include the determination of quantitative effects of micro-wave energy on living organisms and health care equipment design.

The Societal Systems Engineering Center provides an interdisciplinary environment in which engineering faculty and students can participate in the analysis, design and improvement of a wide array of systems which serve society. Current efforts include work in health care management and planning, police patrol scheduling and measurement of productivity in city government departments.

SCHOLARSHIP

A graduate degree is evidence of scholarly attainment, of ability to achieve academic excellence, of critical and creative ability with capacity to apply and interpret what has been learned, and of proper use of the work of others.

Continuance in graduate status is contingent on satisfactory scholarship, that is, grades of B or better. Every effort is made to assist the student whose work suffers as a result of conditions beyond his control.

To be awarded a graduate degree, the student must have achieved an average of at least 3.0 (B) in those courses used to satisfy degree requirements.

REVALIDATION OF CREDIT

Master's Degree

Over-age credits, not to exceed nine, which are between six and ten years old and which were taken at Wayne State University, may be revalidated by special examinations upon recommendation of the adviser and approval of the Engineering Graduate Officer. A special examination fee of \$5.00 per credit is charged for course revalidation.

GRADUATION

Final Report — A final report on each candidate certifying the completion of degree requirements and accompanied by an updated cumulative record will be submitted to the Engineering Graduate Officer by the major department.

Deadlines — Consult the schedule prepared for each commencement by the Engineering Graduate Office.

Commencement — Information concerning commencement announcements, caps, gowns, invitations, tickets, time and place, assembling and other items of importance will be mailed to the graduate by the Class Board prior to the event.

Attendance at commencement is mandatory for the master's candidate. He may be excused for reasons of personal health, family illness or residence at a distance from Detroit. Request for excused absence should be directed to the Engineering Graduate Office.

DIVISION OF ENGINEERING

Academic Procedures

For complete information regarding academic rules and regulations of the University, students should consult the General Information section of this bulletin, beginning on page 5. The following additions and amendments pertain to the Division of Engineering within the College of Engineering.

RECOMMENDED HIGH SCHOOL PREPARATION

In order to place sufficient emphasis on the English, mathematics, physics, and chemistry required for normal progress in engineering, restrictions are placed on the fifteen acceptable units of high school credit. The recommended high school preparation for admission to the College of Engineering is:

	<i>number of units</i>
English	4
Algebra	2
Plane and Solid Geometry	1½
Trigonometry	½
Physics	1
Chemistry	1
Social Science or Foreign Language	2
Electives	3

The freshman with this background enters the regular scheduled program if he makes satisfactory scores on the qualifying examinations and has the appropriate preparation in English.

Students having only two of the above units in mathematics and one unit of physics, chemistry, or biology may also be admitted to the College of Engineering. Proficiency in the areas of the missing units can be obtained by supplementary course work before entering the courses normally scheduled for freshman engineering students.

Further, admission may be granted with fewer than four units of English provided evidence of competency in English can be shown.

QUALIFYING EXAMINATIONS

All entering freshmen are expected to take the qualifying examinations in mathematics and chemistry. Consult the *Schedule of Classes* for information regarding the schedule for the examinations or contact the Counseling Services Office, 343 Mackenzie Hall, 577-3400.

Mathematics

The sequence of mathematics courses for the engineering student normally begins with Mathematics 0211. For admis-

sion to Mathematics 0211 a qualifying examination must be passed. Failure to qualify for Mathematics 0211 may result in the student being placed in a lower level course such as 0180, 0179, 0178 or 0095, depending upon the student's performance. Students may apply to take the Qualifying Examination in either Mathematics 0180 or 0211 depending upon their high school preparation. The Mathematics 0180 Qualifying Examination is based upon one and one-half units of high school algebra and one unit of high school geometry. The Mathematics 0211 Qualifying Examination is based upon a total of three and one-half to four units of college preparatory mathematics covering algebra, plane and solid geometry, and trigonometry.

Chemistry

The sequence of chemistry courses for the engineering student normally begins with Chemistry 0107. Qualification for Chemistry 0107 requires a satisfactory score on the Chemistry Qualification Examination. If a student is not properly prepared to consider placement in Chemistry 0107, direct entry into Chemistry 0105 is permissible. Chemistry 0105 will then replace 0107 in the student's program.

English

All entering freshmen and transfer students who have not transferred college credit in freshman English should determine their potential in writing at Wayne State by consulting their SAT scores. A SAT verbal score of forty-two or less requires that English 0130 be completed upon entering the engineering program. If the SAT score is over one year old, arrange to take the CEEB exam. Check with the Counseling Services Office, 343 Mackenzie Hall (577-3400), for test dates and times.

Degree Credits

Consult the total degree credit requirement listed at the end of each curriculum listing.

ENTERING FRESHMEN

Upon the receipt of notification of admission by the University Admissions Office, entering freshmen should contact the Office of the Associate Dean for Undergraduate Programs. Continuing contact with entering students will be maintained to keep them informed regarding their obligations and activities prior to the beginning of classes for the quarter in which they propose to enter the program.

TRANSFER STUDENTS

For the student who has attended another institution and who has been found admissible to the Division of Engineering, the amount of advanced standing will be determined by the College and will depend upon the quantity and quality of the degree work completed prior to enrollment in this institution.

Whether all, or only part, of such transferred credit may be applied toward a degree at Wayne State will depend on the requirements of the curriculum chosen. The student should consult his department chairman on this matter.

Any request for reconsideration of the evaluation of transfer credits accepted by the College of Engineering should be made in writing within one year of the date of the student's first enrollment in the College of Engineering, or within one year of the date of the evaluation if the latter is made subsequent to the student's enrollment in the College of Engineering.

For information regarding transfer admission requirements see page 9.

Transfer of College within the University—A student in another college of Wayne State University who wishes to transfer to the college of engineering makes application directly to the Division of Engineering. The transfer form is available in the Dean's office. This application for transfer should be made as soon as the student decides to work toward an engineering degree since delay may cause him serious prerequisite problems and loss of credit.

The student will ordinarily be admitted if his average is at least C in the courses pertinent to his engineering program.

Guests

A student attending another engineering college who wishes to take course work at Wayne State for the purpose of credit transfer to his home institution may be admitted as a guest student for one term. This is done by applying through the University Office of Admissions using either the *Application for Undergraduate Admission* or the *Graduate Guest Application*. These applications require certification by an official of the home institution. For further information on graduate guest admission and visiting doctoral guests, see page 20 in the section "Graduate Admission."

The Michigan Conference of Engineering Deans has entered into an agreement endorsing the exchange of guest privileges between ECPD-accredited engineering curricula in Michigan.

ATTENDANCE

Regularity in attendance is necessary to success in college work. Excessive unexcused absences may result in withdrawing a student from a class. The student should arrange with his instructor in advance for absences incident to attending meetings of professional organizations or of learned societies. Other absences due to illness or conditions beyond his control should be reported upon the student's return to class.

DEAN'S LIST OF HONOR STUDENTS

A student who achieves a term honor point average of 3.5 or more, based on a program of 12 hours or more, is notified by the Dean of his citation for distinguished scholarship and his name is included on the Dean's List of Honor Students.

PROBATION

A student is considered to be on probation whenever his cumulative honor point average falls below 2.0. A student may also be placed on probation whenever his academic performance is deemed unsatisfactory.

When placed on probation the student is required to meet with the Associate Dean to remove the academic hold on his registration.

While on probation a student may not represent the College of Engineering in student activities.

The Academic Standards Committee of the College administers the regulations for such students.

A student on probation is expected to remove his honor point deficiency promptly. (Honor point deficiency is obtained by subtracting the total number of honor points from twice the total number of credit hours in the honor point base. It is the number of honor points by which the student fails to achieve a 2.0 honor point average.)

If at the end of his second quarter on probation the student's honor point deficiency has not increased, he may be continued on probation for one more quarter. For part-time students, a quarter will be considered to consist of twelve consecutive credit hours.

Upon the attainment of an honor point average of at least 2.0, the student will be returned to regular status.

A student may be refused the privilege of registering in the Division of Engineering if at any time his honor point deficiency exceeds sixteen points, or if he has not returned to regular status at the end of his third quarter on probation. A student may also be refused the privilege of registering in the Division for irresponsible attendance and performance in class, regardless of any probationary status.

The privilege of registering in the Division will ordinarily be withheld for at least a year. Any class work taken at any institution during the period of exclusion may not be considered for transfer toward an engineering degree of this Division.

A student who has been refused the privilege of registering in the Division may request a re-consideration of his status. He should not do this, however, unless he can provide evidence of extenuating circumstances which might be unknown to the Associate Dean.

SUBSTANDARD PERFORMANCE

The grade D is considered by the Division of Engineering to represent sub-standard performance. The implications of this are particularly significant in the science, mathematics, and engineering sequences.

If a grade D is received in any course which is prerequisite to another course in his program, or in a course in his department of specialization, or in a required course in mathematics, physics, or chemistry, the student may be required by the chairman of his major department to repeat that course.

A student not required to repeat a course in which a D grade has been received may elect to audit such a course to better his knowledge. However, he then may not later enroll in the course for credit or obtain credit for the course by Special Examination.

A course in which a grade below C has been earned may not be subsequently passed by Special Examination.

When repeating a course, failure for the third time to pass it with a grade satisfactory to the major department constitutes grounds for refusing a student further registration in the Division of Engineering.

An engineering student who repeats a required course in which he received a grade of D or E must repeat that course at Wayne State University unless he secures prior written approval from his department chairman and the Dean to take the course at a designated institution.

Students are directed to pages 15 and 16 of this Bulletin for information relating to repeating courses, withdrawals and change of program and credit by special examination.

GRADUATION

At graduation the University requires a minimum of 2.0 honor point average in the total residence credit. Additionally, the Division of Engineering requires a minimum 2.0 honor point average in the total work taken in the department of specialization.

Graduates may qualify for a special diploma reading "with distinction" or "with high distinction" under the following conditions:

With distinction — An honor point average of 3.3, if the candidate has earned at least 150 credits in residence; 3.4, if between 90 and 150 credits.

With high distinction — An honor point average of 3.6, if the candidate has earned at least 150 credits in residence; 3.7, if between 90 and 150 credits.

Each year, Commencement Exercises are held in December for summer quarter and fall quarter graduates and in June for winter quarter and spring quarter graduates.

PROFESSIONAL REGISTRATION

An additional mark of engineering competence is the successful completion of examinations for professional registration. These examinations are given by each state. Upon being registered in a state, the engineer may legally provide engineering services to the public of that state. Most of the states have reciprocity agreements for transfer of registration. In Michigan, the State Board of Registration for Professional Engineers offers the registration examination in April and November of each year. Graduates at the bachelor's degree level are qualified and urged to take Part I (Engineering Theory) of the examination immediately upon graduation. Application forms are available in the Dean's office.

FINANCIAL AIDS

SCHOLARSHIPS

An increasing number of scholarships are granted each year to undergraduate and graduate students in the College of Engineering. The scholarships differ greatly in their specifications: some stress high scholarship, others place emphasis on financial need or campus citizenship. Engineering students are also eligible for some of the general University scholarships granted each year.

The University is participating in the National Defense Student Loan Program authorized by the National Defense Education Act of 1958. Numerous other loan funds have been established to help students over temporary difficulties. Inquiries concerning these programs should be addressed to the Office of Scholarships and Financial Aids. Please refer to page 37 for further information.

Graduate and professional fellowships and scholarships are tax-exempt academic grants awarded on the basis of scholarship and overall promise. Their typical duration is one year; however, many are renewable. They defray tuition and course-related fees. Fellowships also carry a substantial stipend permitting full-time study or research toward the Ph.D. degree. Further information may be obtained from the Office for Graduate Studies. Grants in Aid as well as National Defense Student Loans are available through the Office of Scholarships and Student Financial Aids; see page 37.

Assistantships, fellowships, and scholarships are available in many graduate departments. Information concerning these may be obtained from the chairman of the department in which the student desires to major. From time to time, fellowships and other opportunities are opened to students on other than a continuing basis. Inquiries should be directed to the Associate Dean of the College of Engineering, Room 136, Engineering Building.

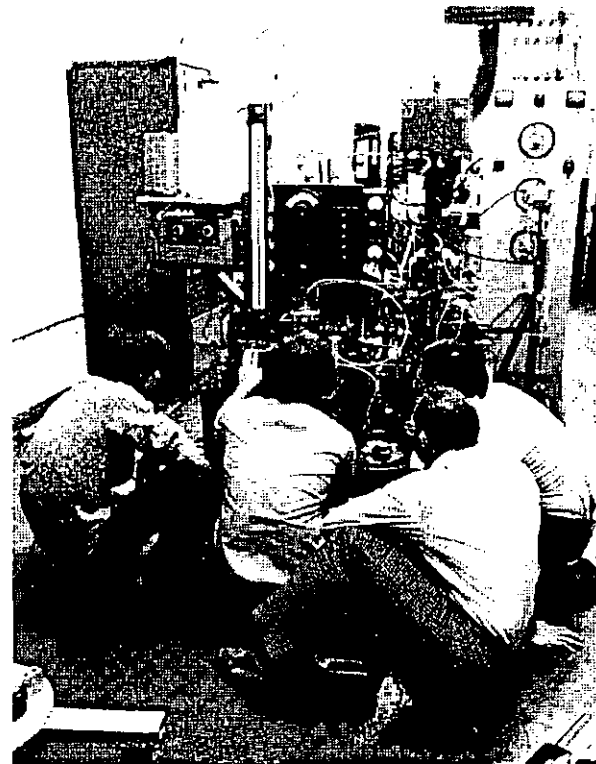
The following scholarships and fellowships have been granted to engineering students in recent years:

American Metal Climax Foundation Scholarship—Climax Molybdenum
American Society for Metals Foundation Scholarship in Metallurgical Engineering
American Society of Tool and Manufacturing Engineers Scholarship in Engineering
Ansul Corporation Scholarship
Burrughs Corporation Scholarship
Chrysler Central Engineering Co-op Scholarship
Chrysler Corporation Fund Scholarship
Chrysler Forge Scholarship
College of Engineering Scholarship
Detroit Edison Co-op Scholarship
Dow Chemical Corporation Co-op Scholarship
Ex-Cell-O Corporation Co-op Scholarship
International Nickel Company Fellowship in Metallurgical Engineering
Michigan Bell Co-op Scholarship
Michigan Consolidated Gas Company Co-op Scholarship
Murray and Helen Altman Scholarship
National Science Foundations Fellowships

Ohio Edison Co-op Scholarship
Proctor & Gamble Co-op Scholarship
Board of Governors Scholarship
Board of Governors Grant
National Direct Student Loan
College Work Study
Supplemental Education Opportunity Grant
William T. Rettenmeier Memorial Scholarship
Rockwell International Co-op Freshman Scholarship
Giffels Associates, Inc. Scholarship
The Arthur Raymond Carr Memorial Scholarships in Engineering
The L. David Cook Award in Chemical and Metallurgical Engineering
The Detroit Edison Scholarships in Engineering
The Frederick G. Weed Graduate Scholarship in Chemical Engineering
The General Motors Scholarship Program
The Graduate Professional Scholarship
The James E. and Christina L. Orr Scholarships in Engineering
Mercier Corporation Scholarship
The Monsanto Scholarship in Engineering
The Robert G. Wingerter Awards for Scholastic Excellence in Engineering
The Society of Engineers' Wives Scholarship in Engineering
The William R. Kales Scholarship in Engineering
U. S. Rubber Company Fellowship in Engineering
University Graduate Fellowship
University Unrestricted Fund Scholarship

Placement Services

The services of the University Placement Office are available to students wishing assistance in securing either temporary or permanent employment while enrolled as students or upon graduation. For additional information see page 34.



STUDENT ACTIVITIES AND ORGANIZATIONS

The **Engineering Student-Faculty Board** coordinates and is responsible for all organized student activities in the College. In addition, it sponsors certain college-wide programs such as a College open-house called Engineering Showcase.

The **Wayne Engineer**, a student engineering magazine, is published four times yearly. It is a member of the Engineering College Magazines Association.

Chi Epsilon, a national civil engineering honor fraternity, was founded at the University of Illinois in 1922. The forty-eighth chapter of the fraternity was installed at Wayne State University on May 11, 1956. Election to membership is based on scholarship, character, practicality, and sociability for undergraduate and graduate students, and professional eminence for members of the profession.

Eta Kappa Nu is a national electrical engineering honorary society founded at the University of Illinois in 1904. Election to this society is based on demonstrated outstanding ability, as evidenced by scholarship and individual attainments. The Delta Alpha Chapter was installed at Wayne State University on January 18, 1960.

Pi Tau Sigma is a national mechanical engineering honorary society founded in 1915 at the University of Illinois and at the University of Wisconsin to "foster the high ideals of the engineering profession." Students who have given promise of becoming outstanding leaders in the mechanical engineering field are elected to membership. The Tau Phi Chapter was installed at Wayne State University on May 20, 1960.

The **Tau Beta Pi Association** is a national honorary engineering society which was founded at Lehigh University in 1885. By election to membership the society recognizes that the member has conferred honor on his Alma Mater by distinguished scholarship and exemplary character as an undergraduate or by attainments in the field of engineering after graduation. The Michigan Epsilon Chapter of Tau Beta Pi was installed at Wayne State University on March 10, 1951.

The **Society of the Sigma Xi** is a national society devoted to the encouragement of research in science, pure and applied, and to the recognition of achievement in those fields. Undergraduates of high scholastic standing in two or more departments of pure or applied science who have shown promise of ability to conduct original investigations in those fields may be nominated by the faculty for election to associate membership in the Wayne State University Chapter. Graduate students may be nominated to membership on the basis of demonstrated research ability and high scholarship.

Theta Tau, a national professional engineering fraternity, was established at the University of Minnesota in 1904. Epsilon Beta, the twenty-seventh student chapter, was founded on May 19, 1951, at Wayne State University.

Association of Black Engineers and Applied Scientists, founded in 1969, was established to encourage the choice of engineering and science as career fields for black students.

The **Society of Women Engineers** student chapter is an educational service organization dedicated to making known the need for women engineers and encouraging young women to consider an engineering education. The Wayne State University student chapter was founded in 1973.

Student Branches of Professional Societies add much to the education and preprofessional training of their members. Many outstanding engineers from the community come to the campus each year to address meetings of the branches. Other activities include social meetings and trips to important engineering projects. Student branches of the following professional societies have been active on the campus for several years:

- American Institute of Chemical Engineers
- American Institute of Industrial Engineers
- American Institute of Mining, Metallurgical, and Petroleum Engineers
- American Society of Civil Engineers
- American Society of Mechanical Engineers
- Institute of Electrical and Electronics Engineers
- Society of Automotive Engineers



COURSES OF INSTRUCTION¹

DIVISION OF ENGINEERING

Basic Engineering (B E)

0250. Engineering Internship. Cr. 1 (Max. 6).

Prereq: sophomore standing and consent of coordinator. Offered for S and U grades only. Engineering practice under supervision in cooperative work-study program.

0314. Computer Graphics I. Cr. 4.

Prereq: junior standing, CSC 0285 or equiv. An introduction to on-line and off-line graphic programming systems and computer controlled graphic input-output devices. Applications of computer graphics in a university and industrial environment.

0330. Engineering and Society. Cr. 4.

Prereq: junior standing. The relationship of engineering to society from the Newtonian Revolution to the present; the proper role of future technology.

0414. Computer Graphics II. Cr. 4.

Prereq: B E 0314 or equiv. A continuation of Basic Engineering 0314 with emphasis on interactive CRT Graphic Systems and their application in engineering and scientific endeavors.

Chemical Engineering (CHE)

0182. Analysis of Comparable Methods of Experimentation. (1,3). Cr. 2.

Prereq: CHM 0108. Presentation of experimental procedures and research operations, with subsequent discussions and written reports of the analyses made by groups involved in comparable situations.

Required Undergraduate Courses

A grade of C is the minimum acceptable for these required courses. Continuation in sequence courses after receipt of D may be authorized only by the department chairman.

0220. Introductory Thermodynamics. (4,0). Cr. 4.

Prereq: MAT 0212. An introduction to the first and second laws of thermodynamics. Conversion between internal, chemical and mechanical energies.

0280. Material and Energy Balances. (3,2). Cr. 4.

Prereq: PHY 0219 and CHM 0108. Material balances, stoichiometry, and simultaneous mass and energy balances.

0304. Computational Methods in Engineering (ECE 0304). Cr. 4.
Prereq: CSC 0285; coreq: MAT 0519. The application of numerical methods and FORTRAN programming to engineering problems. Methods for the solution of linear and non-linear algebraic equations, numerical integration, differentiation, error estimation and finite difference techniques.

0320. Chemical Process Engineering I: Fluid Flow. (3,0). Cr. 3.

Prereq: MAT 0519. Transient and steady state transport of momentum in engineering systems. Analytical and empirical methods.

0350. Chemical Process Engineering II: Heat Transfer. (3,0). Cr. 3.

Prereq: CHE 0320; coreq: CHE 0352. Practical aspects of transport of materials and heat. Piping and pumping systems, metering, heat exchange theory, equipment costs.

0352. Measurements Laboratory. (1,6). Cr. 3.

Coreq: CHE 0350. Laboratory course in the principles and practice of measuring chemical, physical and thermodynamic properties of importance to chemical engineering problems. Technical reports.

0358. Chemical Equilibria (MET 0358). (4,0). Cr. 4.

Prereq: CHE 0220, CHE 0280. Qualitative and quantitative treatment of homogeneous and heterogeneous phase and chemical equilibria. Use of chemical activities and activity coefficients relating ideal to actual systems. Use of reference states and excess properties of the prediction of equilibrium diagrams and the determination of feasibility of chemical reactions.

0380. Chemical Process Engineering III: Mass Transfer. (4,0). Cr. 4.

Prereq: CHE 0350; coreq: CHE 0382. Quantitative treatment of separation processes in unit operations. Distillation, extraction, and those processes in which there is simultaneous heat and mass transfer.

0382. Chemical Engineering Laboratory. (1,6). Cr. 3.

Coreq: CHE 0380. Experimental study of chemical equilibria, reaction kinetics and rate processes. Laboratory case studies.

0388. Kinetics and Reactor Design. (4,0). Cr. 4.

Prereq: CHE 0358, MAT 0519, CHM 0542. Quantitative treatment of complex homogeneous and heterogeneous chemical reactions and the design of batch, stirred and flow reactor systems.

0420. Chemical Process Engineering IV: Economics and Design. (4,0). Cr. 4.

Prereq: CHE 0380 and 0388. The overall chemical process. Economic analysis of the process and the optimum-economic design of processes.

0426. Chemical Engineering Research: Organization. (1,3). Cr. 2.

Prereq: consent of chairman. Organization of a research project: literature survey, equipment specification and presentation of a written proposal for the laboratory investigation.

0450. Chemical Process Integration. (2,2). Cr. 3.

Prereq: CHE 0420. Application of engineering and science background to the design of chemical processes. Comprehensive problems deal with sources of data, design principles, and optimization techniques.

0456. Chemical Engineering Research: Investigation. (0,12). Cr. 4.

Prereq: CHE 0426. Laboratory investigation of an approved research project. Conferences and oral reports with adviser.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

0460. Process Dynamics and Simulation. (3,0). Cr. 3.
Prereq: CHE 0380. Application of system dynamics and mathematical modeling to design and analysis of chemical processing systems.

0486. Chemical Engineering Research: Report. (1,3). Cr. 2.
Prereq: CHE 0456. Preparation of a comprehensive written report on the research project completed in Chemical Engineering 0456. Final oral report to the department staff.

Undergraduate Elective Course

0490. Directed Study. Cr. 1-9 (Max. 9).
Prereq: consent of chairman. Select some field of chemical engineering for advanced study and instruction.

Undergraduate and Graduate Elective Courses

0504. (ECE 0504) Numerical Methods for Engineers. Cr. 3.
Prereq: MAT 0519 and CHE 0304. Solution of ordinary and partial differential equations of engineering by modern numerical methods, including digital computer programming.

0509. (MET 0509) Physical Ceramics. Cr. 4.
Prereq: MET 0260 or equiv. Physical nature and behavior of vitreous and crystalline non-metals. Crystallography and atomic bonding relationships relative to mechanical, thermal, optical, magnetic and electrical properties. Phase equilibria and transformations, interactions in liquid-solid systems, surface properties, and diffusional phenomena.

0511. Properties of Materials. Cr. 3.
Prereq: senior standing, or consent of instructor. Introduction to quantitative methods for the estimation of thermodynamic and transport properties of gases, liquids and solids.

0517. Nuclear Engineering Laboratory (MET 0517). (0,6). Cr. 2.
Prereq. or coreq: CHE 0586. Basic phases of nuclear engineering, including the determination of operating characteristics of nuclear reactors, hazards, and safety practices.

0520. Transport Phenomena. Cr. 4.
Prereq: senior standing or consent of instructor. Unified principles of heat mass, and momentum transport with application to applied science and engineering problem areas.

0525. Energy: Resources and Technology. Cr. 3.
Prereq: consent of instructor. United States and world energy demands and resources, new sources of energy, energy utilization and efficiencies, current technology for production of synthetic fuels, environmental impact and energy policy.

0535. Polymer Engineering I (MET 0535). Cr. 3.
Prereq. or coreq: MAT 0519. An introductory study and application of fundamental relations between chemical structure and physical properties of high polymers. The preparative processes and manipulation of polymers in the related industrial fields of fibers, plastics, resins, and rubbers.

0537. Polymer Engineering Laboratory (MET 0537). Cr. 2.
Prereq. or coreq: CHE 0535. Selected laboratory investigations to show the effect of chemical structure and additives on physical properties of polymer aggregates. Correlation of results incorporated into laboratory reports.

0540. Molecular Energy Transfer and Reaction Dynamics. Cr. 3.
Prereq: CHE 0388 or CHM 0542 or CHM 0544. Introductory concepts, language and phenomena in molecular processes.

0550. Heat Pipes. (3,2). Cr. 4.
Prereq: CHE 0350, 0380 or equiv. Theory, design, construction and operation of heat pipes. Basic principles of heat transfer and fluid flow will be used to optimize design and brazing and vacuum techniques will be used to construct working models of these recently developed, self-contained devices of extremely high thermal conductance.

0555. Environmental Science I: Introduction to Air Pollution. Cr. 4.
Prereq: CHE 0220 and MAT 0519. Man's natural environment as well as nature's cleansing processes, man-made and natural contamination processes, and man's control over these phenomena through both technological and legal processes.

0559. Atmospheric Transport Phenomena. Cr. 3.
Prereq: CHE 0220 or equiv. Formation of atmospheric conditions; mathematical modeling of environmental systems by means of transport theories.

0561. (MET 0561) Science of Materials. Cr. 4.
Prereq: PHY 0220 or equiv. Mathematics of physical models representing solid state phenomena. Wave propagation in a lattice, including elastic, light, and electron waves. Includes specific heats, optical phenomena, bond theory, dielectric properties, magnetism and ferro-electricity; classical and quantum statistics, and reciprocal lattice concepts.

0565. Particulate Systems. Cr. 3.
Prereq: CHE 0380. A study of particles including fixed and fluidized bed systems. Particle characterization: momentum and heat transport in solid liquid systems. Design applications.

0566. Multicomponent Separation Processes. Cr. 3.
Principles involved in separation of multicomponent mixtures, mathematical simulation, design of units. Primary emphasis on distillation.

0569. (MET 0569) Engineering Aspects of Product Liability. Cr. 3.
Prereq: senior standing. Legal aspect of accident reconstruction on the basis of product liability to illustrate plaintiff and defendant approach to handling engineering subject matters.

0571. (MET 0571) Case Studies in Material Science. Cr. 3.
Prereq: MET 0569. Case studies involving product design, product evaluation, specifications, safety aspects, accident reconstruction.

0572. (ECE 0572) Electrophysiology (M E 0572). Cr. 3.
Prereq: ECE 0381, 0558 or consent of instructor. Mathematical techniques to describe the electrical behavior of nerve and muscle. Natural electrical sources in the physiological system; propagation of energy to various parts of the system.

0575. Pyrodynamics. Cr. 3.
Prereq: senior standing. The study of decomposition, ablation, and combustion processes; the kinetics and the simultaneous heat and mass transfer occurring during these processes.

0584. Chemical Methods for Air Pollution Control. Cr. 3.
Prereq: senior standing or consent of instructor. Strategies for air pollution control and design of air pollution control equipment, including packed and plate towers for scrubbing, electrostatic precipitation, venturi scrubbing, filtration, and process modification.

0585. Vacuum Technology (MET 0585). Cr. 3.

Prereq: PHY 0220 or consent of instructor. Vacuum techniques, flow of gases through tubes and orifices, operation of pumps and manometers, vacuum materials, vacuum systems.

0586. Elements of Nuclear Engineering (M E 0586) (MET 0586). (4,0). Cr. 4.

Prereq: senior standing. An introduction to nuclear energy. The relevant aspects of nuclear physics, radioactivity, shielding, heat transfer and fluid flow are reviewed and applied to the design of large thermal reactors. Biological hazard, waste disposal and developments as fast breeder are discussed.

0595. Special Topics in Chemical Engineering I. Cr. 1-4.

Prereq: consent of chairman. Maximum of six hours of Special Topics credit in any one degree program. A consideration of special subject matter in chemical engineering. Topics to be announced in *Schedule of Classes*.

0625. Advanced Process Dynamics and Simulation. Cr. 3.

Prereq: CHE 0460. Adaptation of the principles of process analysis and simulation to complex chemical processing systems. Discussion of topics related to process computer control.

0635. Polymer Engineering II (MET 0635). Cr. 3.

Prereq: MAT 0519. A detailed analysis of polymer processing. Rheology of polymers, flow in tubes, calendaring, extrusion, injection molding, surface phenomena, and polymer crystallization.

0645. Biochemical Engineering. Cr. 3.

Prereq: consent of chairman. An introductory study of the principles of chemical engineering, biochemistry and biology which are essential for the design of industrial systems involving biological transformations.

0655. Strategy of Process Engineering. Cr. 3.

Prereq: consent of chairman. Economic evaluation of chemical, metallurgical, and petroleum processes and methods for determining the optimal conditions for their operation.

0660. Fusion Engineering (ECE 0619) (M E 0660). Cr. 3.

Prereq: consent of instructor. Introduction to physical processes involved in nuclear fusion. Magnetically confined plasmas and laser induced fusion. Current status and economics.

0665. Electrochemical Engineering (MET 0665). Cr. 3.

Prereq: CHM 0544; CHE 0380 and 0388. Advanced study of the design and operation of industrial electrochemical processes, including the treatment of problems involving simultaneous mass-transfer, heat-transfer and chemical reaction.

0675. Heterogeneous Equilibria (MET 0675). Cr. 3.

Prereq: CHE 0358. An intermediate study of the phase diagrams of importance in chemical and metallurgical engineering and of the principles involved in such equilibria.

0685. (MET 0685) Corrosion. Cr. 3.

Prereq: senior standing in engineering. Advanced study of the theories of corrosion of materials, and applications of these theories in the engineering field. Analysis of industrial problems. Comprehensive engineering reports.

Required Graduate Courses for M.S. and Ph.D. Degrees

Enrollment in the following courses is limited to graduate students. A grade of B is the minimum acceptable for these required courses.

0710. Advanced Engineering Mathematics (MET 0705). Cr. 4.

Prereq: MAT 0519 or equiv. Presentation, evaluation and use of mathematical methods within the framework of engineering problems; including ordinary and partial differential equations, transforms and vector operations.

0720. Advanced Transport Phenomena I. Cr. 4.

Prereq: CHE 0710 or equiv. Basic properties of heat, mass and momentum transfer in engineering systems; fundamental equations, formulation and solution of boundary value problems.

0730. Advanced Thermodynamics. Cr. 4.

Prereq: CHE 0358 or consent of chairman. Principles of thermodynamics with emphasis on application of the auxiliary functions to chemical equilibria of fluid states.

0740. Advanced Kinetics. Cr. 4.

Prereq: CHE 0220 and CHE 0388 or consent of instructor. Basic properties of reacting systems including the steady state approximation, the relationship of thermodynamics to kinetics; the treatment of coupled reaction problems and design of chemical reactors.

Required Graduate Course for Ph.D. Degree

0750. Advanced Transport Phenomena II. Cr. 4.

Prereq: CHE 0720. Coupled transport phenomena in engineering systems; simultaneous fluid flow with heat and mass transfer, transport in multiphase systems and review of correlation methods.

Elective Graduate Courses

0770. Phase Equilibrium Thermodynamics. Cr. 3.

Prereq: CHE 0730. Applications of thermodynamic principles to phase equilibrium problems encountered in design practice.

0780. Separation Processes. Cr. 3.

Prereq: CHE 0380. Principles involved in the separation of chemical mixtures. Mathematical modeling and application to design problems.

0790. Directed Study. Cr. 1-9 (Max. 9).

Prereq: consent of adviser, chairman and Engineering graduate officer. Library investigation of an approved project in chemical engineering. Independent study, conferences with supervisor, and preparation of a comprehensive written and oral report.

0795. Special Topics in Chemical Engineering II. Cr. 1-4.

Prereq: consent of chairman. Maximum of six hours of Special Topics credit in any one degree program. A consideration of special subject matter in chemical engineering. Topics to be announced in *Schedule of Classes*.

0809. (MET 0809) Advanced Ceramics. Cr. 3.

Prereq: CHE or MET 0509. Advanced and theoretical topics in non-metallic materials. Topics in sintering and pressing, sintering in the presence of a liquid phase, structure of ceramics.

0811. Energy Transfer Processes. Cr. 4.

Prereq: CHE 0710 or equiv. An advanced presentation of the microscopic modeling of energy transfer processes. Examples drawn from vibrational relaxation, molecular lasers and advanced combustion processes.

0815. Advanced Nuclear Engineering (MET 0815). Cr. 3.

Prereq: CHE or MET 0515 or consent of chairman. Design, theory, and operation of nuclear reactors from the standpoint of

chemical and metallurgical engineering. Design based on requirements for heat removal, burn-up, and materials. Fermi Age Model and Two-Group Theory with modifications for reflectors and control rods. Transient operation and instrumentation.

0831. (MET 0831) Interaction of Radiation and Matter. Cr. 3.

Prereq: MAT 0521 and PHY 0686 or MET 0821, or consent of instructor. Development of basic aspects of interaction of various radiations with matter. Nature of radiation and its propagation. Applications include reactor shielding, nuclear cross sections.

0835. Polymer Engineering III (MET 0825). Cr. 3.

Prereq: CHE 0535 or consent of instructor. Processes and preparation of condensation and addition polymers for the fields of fibers, plastics, and rubbers. Kinetics of rates of conversion, degree of polymerization, and structural identity and attitude as related to conditions of polymerization.

0840. Advanced Kinetics II. Cr. 4.

Prereq: CHE 0740. Chemical kinetics; reactions in flow fields (shock waves and flames), photochemical and chemiluminescent reactions, diffusion controlled reactions and the numerical solution of coupled chemical reactions.

0845. Plant Design. (2,2). Cr. 3.

Prereq: consent of instructor. Organization of the literature, science, economics, and engineering for the development of a chemical or metallurgical process. Comprehensive calculations, drawings, and reports.

0855. Crystallization. Cr. 3.

Prereq: CHE 0720. Principles of crystallization and heterogeneous equilibria applied to evaporation and crystallization.

0870. Heterogeneous Flow Systems. Cr. 3.

Prereq: CHE 0720. Various flow systems which involve two phases. Simultaneous flow of liquids and gases, liquids and solids, and solids and gases; fluidization, boiling and moving boundary systems.

0896. Research. Cr. 1-9 (Min. 4, max. 9).

Prereq: consent of chairman and engineering graduate officer. Library and laboratory investigation of an approved proposal for advanced research project. Conferences and periodic oral progress reports. Comprehensive report of entire project upon completion.

0899. Master's Thesis Research and Direction. Cr. 1-6 (12 required).

Prereq: consent of adviser.

0998. Proposals, Grants and Contracts. Cr. 1.

Open only to Ph.D. applicants. Writing of a brief proposal outside student's dissertation area; defense and refereeing of proposals.

0999. Doctoral Dissertation Research and Direction. Credits to be arranged.

Prereq: consent of chairman of departmental graduate committee. No more than ten credits may be elected before doctoral candidacy is obtained.

Civil Engineering (C E)

0307. Surveying I. (3,3). Cr. 4.

Prereq: consent of instructor. Principles of plane surveying; measurement of horizontal and vertical distance, directions and angles, reverses, areas.

0308. Surveying II. (3,3). Cr. 4.

Prereq: CE 0307. Route surveys, parabolic and circular curves, topography, construction surveys, public land.

0325. Applied Fluid Mechanics. Cr. 3.

Prereq: ME 0330 or consent of instructor. Experimental verification of theories of fluid mechanics as encountered in civil engineering problems. Specific problems include flow under a sheet pile, one-dimensional consolidation, flow in pipes and pipe systems, use of venturi and orifice meters.

0401. Civil Engineering Analysis. Cr. 4.

Prereq: MAT 0519; prereq. or coreq: CHE 0304 or ECE 0304. Numerical methods applied to linear systems; matrix techniques, linear programming, linear regression; finite difference techniques applied to partial differential equations.

0421. Water Resources. Cr. 4.

Prereq: upper division standing. Water supply, surface and ground water sources, treatment and distribution; water quality, chemical, bacteriological and microscopic; financing and economics of utilities.

0430. Structures I. Cr. 4.

Prereq: ME 0240 and CE 0401. Mechanics of engineering structures. Equilibrium analysis and deformations of trusses and beams. Introduction to design of tension and flexural members. Computer applications.

0433. Structures II. Cr. 4.

Prereq: CE 0430. Uniform and non-uniform torsion of non-circular bars, stability of beams and beam-columns, plastic analysis.

0434. Structures III. Cr. 4.

Prereq: CE 0430. Analysis of structural systems, force and displacement methods, deflections, reciprocal relations and influence lines, steel design problem, computer applications.

0436. Reinforced Concrete I. Cr. 4.

Prereq: CE 0434. Structural properties of reinforced concrete; ultimate strength design methods; transformed area; design of reinforced rectangular and tee beams, columns, and slabs; continuity in concrete buildings.

0445. Civil Engineering Materials I. (3,3). Cr. 4.

Prereq. or coreq: ME 0240. Stress-strain-time-temperature properties of elastic, plastic, and visco-elastic single component materials. Laboratory experiments and demonstrations to determine material constants for steel, plastics and grain properties of soils.

0446. Civil Engineering Materials II. (3,3). Cr. 4.

Prereq: CE 0445. Stress-strain-time-temperature properties of multi-component materials and their constituents. Laboratory experiments and demonstrations to determine material properties for various soils, portland cement concrete, bituminous concrete and lightweight construction materials.

0452. Engineering Properties of Soils. Cr. 4.

Prereq: CE 0446. Strength and deformation characteristics of soils and the factors that determine them. Stress distribution, water flow through permeable media.

0490. Directed Study. Cr. 1-9 (Max. 9).

Prereq: consent of chairman. Supervised study and instruction in civil engineering. Written report required.

0497. Seminar in Civil Engineering. Cr. 2.

Prereq: senior standing. Discussion and reports on current topics in the field of civil engineering.

0510. Hydrology. Cr. 4.

Prereq: consent of instructor. Precipitation and runoff, probability applications to hydrological data. Stream flow and storage reservoirs; flood control and flood routing; drainage; ground water and well flows; evaporation and water budgets.

0514. Refuse Collection. Cr. 3.

Prereq: consent of instructor, statistics. Fundamentals in the planning of refuse collection systems. Legal, economic and public health consideration.

0517. Refuse Disposal. Cr. 4.

Prereq: consent of instructor. Disposing of solid wastes. Selecting disposal methods, sanitary landfills, incineration, composting, compression and salvage of refuse.

0521. Environmental Engineering. Cr. 4.

Prereq: CE 0421. Waste water, collection, treatment and disposal; waste water characteristics; stream sanitation.

0522. Sanitary Chemistry. Cr. 4.

Prereq: CE 0521 or consent of instructor. Fundamentals of chemical principles and their application to unit operations and processes encountered in the treatment of water and waste water.

0525. Sanitary Engineering Laboratory. (2,6). Cr. 4.

Prereq: CE 0521 or consent of instructor. Physical, chemical and biological analyses of water and waste water and discussion and interpretation of results as they pertain to treatment processes and stream pollution control.

0528. Sanitary Engineering Design. (2,6). Cr. 4.

Prereq. or coreq: CE 0521. Design principles of water and waste water treatment plants. Plant layouts and the design of elements of the plant.

0529. Fundamentals of Water Pollution Control. Cr. 4.

Prereq: consent of instructor. The quality of water resources and nature of various types of water pollution, water quality criteria and the engineering aspect of water pollution control.

0533. Advanced Structural Analysis. Cr. 4.

Prereq: CE 0434 or consent of instructor. Moment distribution. Effect of axial loads on stiffness of flexural members. Buckling of trusses and rigid frames. Introduction to plastic analysis. Matrix method of analysis. Computer applications.

0537. Reinforced Concrete II. Cr. 4.

Prereq: CE 0436 or consent of instructor. Theory and design of two-way and flat slabs, yield line theory, footings and retaining walls, composite beams, box girders.

0538. Prestressed and Precast Concrete. Cr. 4.

Prereq: CE 0436. Principles of prestressing and precasting concrete. Design and analysis of statically determinate and indeterminate prestressed concrete members.

0541. Building Systems (3,3). Cr. 4.

Prereq: CE 0436. Relationship of cost to type of structural system chosen and to framing plan. Constraints imposed on structural system by other building components and user needs.

0543. Advanced Structural Design. (2,6). Cr. 4.

Prereq: CE 0541 or consent of instructor. Design of contemporary building systems; constraints imposed by architectural, economic, construction and service equipment considerations.

0550. Soil Mechanics. Cr. 4.

No credit after Civil Engineering 0452. Prereq: consent of instructor. Study of soil types, natural soil deposits, conditions for formation of soils, grain properties, aggregate properties. Relations between various indices and soil characteristics.

0551. Applied Soil Mechanics I. Cr. 4.

Prereq: consent of instructor. Application of principles of soil mechanics to engineering design and construction with respect to footings, rafts, retaining walls, anchored bulkheads, open cuts, braced cuts.

0552. Applied Soil Mechanics II. Cr. 4.

Prereq: CE 0551. Continuation of Civil Engineering 0551. Foundation vibrations, effects of high explosive blasting, pile types and uses, pile installation techniques, pile foundations.

0553. Applied Soil Mechanics III. Cr. 4.

Prereq: CE 0551. Design, analysis, and construction of earth dams, rockfill dams, and sheetpile cofferdams.

0560. Transportation Engineering I. Cr. 4.

Prereq: CE 0401. Transportation functions; transportation systems including land, air, and marine modes; transportation system elements including travelled way, vehicle, controls and terminals; techniques of transportation system planning, design, economics, evaluation and selection.

0564. Traffic Engineering I. Cr. 4.

Prereq: ECE 0202 or consent of instructor. An analysis of parameters of traffic flow, their descriptions, measurements, measuring techniques. Stream flow elements, volume, density, speed. Intersection elements; delay, capacity, utilization. Corridor elements; traffic demand, terminals, accidents, drivers, vehicles. Design of traffic engineering systems.

0565. Bituminous Materials and Mixtures. (2,3). Cr. 3.

Prereq: CE 0446. Sources, production, properties, and testing materials; theory and design of bituminous mixtures.

0567. Transportation Engineering II. Cr. 4.

Prereq: CE 0560. Transportation systems analysis using graph theory, network flow, optimizing algorithms, queuing theory and simulation of transportation demand models.

0571. Transportation Design. (3,6). Cr. 5.

Prereq: CE 0452 and 0567. Characterization and description of the design process including driver, vehicle and roadway characteristics; determination of the elements of the transportation system, planning, economics; geometric design; drainage and roadside development; subgrade structure; construction and maintenance of the system; decision theory and statistics in system design.

0580. Legal and Ethical Aspects of Engineering. Cr. 4.

Open to seniors and graduate students only. The relation of the engineer to society, national codes of practice, ethics, law of contracts, agency, negotiable instruments and sales.

0581. Legal Aspects of Engineering Problems. Cr. 4.

Open to seniors and graduate students only. Business of contracting, construction, liabilities of owner, architect, engineer and contractor. Rights in land, boundaries, and foundations. Case studies.

0582. Legal Aspects of Transportation. Cr. 3.

Open only to seniors and graduates. Present and emerging legal issues concerning various aspects of urban and rural transportation problems; highway location, traffic control, driver licensing, public utility relocation, airport zoning. Case studies.

0595. Special Topics in Civil Engineering I. Cr. 1-4.

Prereq: consent of chairman. Maximum of six hours of Special Topics credit in any one degree program. Topics to be announced in *Schedule of Classes*.

0601. Construction Organization and Management. Cr. 4.

Prereq: consent of instructor. An introduction to the organization and management of design and construction firms. Organizational and managerial theories. Problems of organization management, operation and control of engineering systems, case studies.

0602. Civil Engineering Decision Processes. Cr. 4.

Prereq: ECE 0202 or IE 0202 or consent of instructor. Application of probability, statistics and decision processes to civil engineering problems.

0603. Analytical Methods in Design and Construction Systems. Cr. 4.

Prereq: consent of instructor. Analytical and quantitative methods useful for the organization, management, operation and control of design and construction systems. Linear programming, inventory control, waiting line theory and optimization techniques. Computer programming and applications.

0605. Economics in Construction and Design Systems. Cr. 4.

Prereq: consent of instructor. The economics of construction and design systems. Principles of managerial economics, financial mathematics, cost optimization techniques and their programming. Development, analysis and evaluation of economic alternatives.

0607. Estimation and Bidding Theory. Cr. 4.

Prereq: CE 0602. Estimation and bidding methods and procedures. Strategies for estimating and bidding in competitive environments. The economic effects of the methods of estimating and bidding. Forecasting and prediction theory. Computer applications.

0613. Engineering Hydraulics. Cr. 4.

Prereq: ME 0330 or equiv. Fluid mechanics applied to engineering problems. Dimensional analysis and similitude. Open channel flow, non-uniform flow and hydraulic structures.

0615. Airport Engineering. Cr. 4.

Prereq: consent of instructor. Airport financing; aircraft trends, air traffic control; site selection; ground access; demand modeling; noise control; environmental considerations; geometric design; terminal design; pavement design and drainage.

0622. Advanced Sanitary Chemistry. Cr. 4.

Prereq: CE 0522 or consent of instructor. The characteristics of water pollutants and the principles and operations of modern instruments employed in water and wastewater analysis.

0663. (IE 0663) Introduction to Transportation Science. Cr. 4.

Prereq: IE 0557 or equiv. Theoretical developments in operations research for describing traffic flow for highway, railway and advanced automated systems of ground transport.

0601. Scheduling and Control Theory. Cr. 4.

Prereq: CE 0602 and 0603 or consent of instructor. Network

theory; scheduling of project operations; time computations; and resource allocation. The PERT model; the CPM model; and the QUEING model. A cost control and accounting model for project management.

0703. Data Processing in Construction and Design Systems. Cr. 4.

Prereq: CE 0701. The basic concepts of data processing and their integrating role in construction and design systems. Development of information systems and the components of accounting, payroll, scheduling and control. Computer applications.

0705. Projects in Construction and Design Systems. Cr. 4.

Prereq: CE 0703. Project development, organization, management and operation. Applications of qualitative and quantitative techniques in construction and design projects. Introduction of modern operational methods and use of computers in actual project management.

0710. Water Resource Management. Cr. 4.

Prereq: advanced statistics and consent of instructor. Water resource planning. Application of probability and operation research techniques for planning of water resources including engineering analysis, economic objective and water resource principles.

0711. Random Processes in Engineering. Cr. 4.

Prereq: consent of instructor. Random processes in engineering with emphasis on those encountered in civil engineering such as earthquakes, water waves, wind. Theory and application.

0720. Environmental Engineering Operations and Processes I. Cr. 4.

Prereq: CE 0521. Theoretical aspects and applications of various operations and processes of importance in pollution control including sedimentation, floatation, coagulation, softening, and filtration through granular media.

0721. Environmental Engineering Operations and Processes II. Cr. 4.

Prereq: CE 0720. A continuation of Civil Engineering 0720 with concentration on secondary and tertiary treatment processes and theoretical considerations in absorption, disinfection, and other processes.

0722. Industrial Waste Treatment. Cr. 4.

Prereq: CE 0721 or consent of instructor. A study of the sources of specific industrial waste waters and their treatability by physical, chemical and biological processes, including the industries' obligation in the prevention of stream pollution. Problems and solutions involved in combined treatment of industrial and domestic waste waters.

0724. Advanced Wastewater Treatment. Cr. 4.

Prereq: CE 0720, CE 0721. Theory and application of unit processes or process chains normally used for advanced wastewater treatment of domestic and industrial wastes.

0725. Advanced Sanitary Engineering Laboratory. (2,6). Cr. 4.

Prereq: CE 0525. Advanced chemical and biological analyses of water and waste water. Special problem relating to the analysis of a specific water, or of a domestic or industrial waste water.

0726. Stream Sanitation. Cr. 4.

Prereq: CE 0525 and 0721 or consent of instructor. The study of natural watercourses in relation to natural and man-made pollution. Techniques of evaluating the self-purification capacity of streams and the determination of permissible waste water effluent levels.

0730. Structural Mechanics I. Cr. 4.

Prereq. or coreq: CE 0533 and MAT 0520. Theory of bending and torsion of bars, beams on elastic foundations. Introduction to theory of thin plates.

0731. Structural Mechanics II. Cr. 4.

Prereq: CE 0730; prereq. or coreq: MAT 0521. Continuation of Civil Engineering 0730. Theory of thin plates. Stability of bars, plates, and civil engineering structures.

0732. Statically Indeterminate Structures I. Cr. 4.

Prereq: CE 0533 or consent of instructor. Application of structural analysis algorithms in matrix form to the analysis and design of long span bridges and multi-story buildings. Coordinate transformations; analysis by substructures and by recursion; computer use.

0733. Statically Indeterminate Structures II. Cr. 4.

Prereq: CE 0732. Analysis of nonlinear structures. Matrix analysis. Non-linear materials, large deflection theory.

0734. Analysis and Design of Shell Structures. Cr. 5.

Prereq: consent of instructor. Analysis and design of folded plate structures and structures composed of shells of single and double curvature.

0735. Behavior of Structures Under Dynamic Loads. (4,0). Cr. 4.

Prereq: consent of instructor. Dynamic analysis of civil engineering structures, lumped-mass and distributed mass systems, linear and non-linear systems, approximate methods of analysis, computer applications.

0736. Random Vibration of Structures. Cr. 4.

Prereq: CE 0735 and consent of instructor. Random vibration of structural systems by means of the correlation and spectral theories of random processes. Experimental techniques of measurement of correlation quantities.

0737. Finite Methods of Structural Analysis. Cr. 4.

Prereq: consent of instructor. Matrix analysis, force and displacement methods; finite element approach with applications; finite difference analysis and applications.

0738. Analysis of Structures by Models. (2,6). Cr. 4.

Prereq. or coreq: CE 0732. Theory of structural models, experimental verification of deflection theory. Maxwell's Law. Mechanical analysis of stresses in statically indeterminate structures. Deformer systems, model materials and method of fabrication. Determination of deflections and temperature stresses by direct method.

0739. Plastic Analysis and Design of Steel Structures. Cr. 4.

Prereq: consent of instructor. Structural properties of ductile and strain hardening materials, moment rotation characteristics of structural members, equilibrium methods of analysis, mechanism methods, upper and lower bound theorems, design of beams and frames, limitations of the theory.

0740. Optimization of Structural Designs. Cr. 4.

Prereq: consent of instructor. Optimization techniques applied to design of structural systems.

0751. Mechanical Properties of Soils. Cr. 4.

Prereq: consent of instructor. Investigation of the theories of strength and deformation characteristics of soils.

0752. Advanced Experimental Soil Mechanics. Cr. 4.

Prereq: consent of instructor. Elaboration of the theoretical back-

ground and critical examination of the methods and techniques used in laboratory testing of soils.

0762. Traffic Engineering II: Control and Operation. Cr. 4.

Prereq: CE 0564. Traffic control theory and application. Traffic regulation rationales, laws and ordinances; speed control, intersection control, flow control, parking control. Evaluation techniques; investigations, design and application of control devices, statistical analysis, administration.

0763. Urban Transportation Planning. Cr. 4.

Prereq: CE 0567 or consent of instructor. Analyses of urban transportation characteristics and studies. System demand; origin-destination study techniques, land use, parking, demand projections. System capabilities; use studies, transit surveys, terminals, economics. System selection, streets and freeways, transit systems, administration, city planning, finance.

0764. Economic Analysis in Transportation Systems Planning (I E 0764). Cr. 4.

Prereq: ECO 0102 and consent of instructor. Application of engineering economy and price theory in optimization of transportation systems designs functioning primarily in an urban environment; analysis of congestion costs, externalities, primary and secondary costs and benefits, and peak period pricing; case studies.

0765. Mass Transportation Systems. Cr. 4.

Prereq: CE 0763. Design and operation of alternate systems of mass transportation. Rail rapid transit, bus systems, other systems; service capabilities, operating characteristics, public demand, advantages and disadvantages, economics, system coordination.

0768. Transportation Models. Cr. 4.

Prereq: CE 0765. A study of models and model types applied to the problem of traffic flow and transportation analysis. Traffic assignment, modal splits, theories of traffic flow, simulation, optimization, systems analysis.

0790. Directed Study. Cr. 1-9 (Max. 9).

Prereq: consent of adviser, chairman, and engineering graduate officer.

0795. Special Topics in Civil Engineering II. Cr. 1-4.

Prereq: consent of instructor. Maximum of six hours of Special Topics credit in any one degree program. A consideration of special subject matter in civil engineering. Topics to be announced in *Schedule of Classes*.

0796. Research. Cr. 1-9 (Max. 9).

Prereq: consent of adviser and chairman.

0797. Seminar. Cr. 1-4.

Prereq: consent of adviser. Current developments in research and practice in the field of civil engineering.

0824. Biochemical Aspects of Waste Treatment. Cr. 4.

Prereq: four credits in organic chemistry, four credits in biochemistry, and CE 0721. Applications of the principles of biochemistry, including microbial metabolic cycles, enzyme systems, inhibitors and electron transport mechanisms important to the study of biological waste treatment processes.

0827. Physio-Chemical Principles Applied to Water and Waste Treatment. Cr. 4.

Prereq: eight credits in chemistry or CE 0522. Discussions of the thermodynamic, kinetic and colloidal properties of impurities, including surface chemistry and coagulation of colloidal systems treatment systems.

0833. Analysis and Design of Multistory Structures. Cr. 4.

Prereq: C E 0732 and 0739. Elastic analysis. Wind loadings. Plastic analysis and design. Computer used in problem solution. Case studies of current designs.

0835. Reliability Theory of Structures. Cr. 4.

Prereq: C E 0736. Probabilistic description of complex structural systems subject to random inputs. Analytical construction and experimental measurements of input and output probability functions.

0836. Advanced Random Analysis of Structures. Cr. 4.

Prereq: C E 0736. Generalization of the concepts of correlation theory and development of techniques of structural analysis by means of complex variables. Deterministic and random systems.

0837. Underwater Structures. Cr. 4.

Prereq: C E 0736. Importance of underwater structures; problems in analysis and design.

0851. The Bearing Capacity of Soils. Cr. 4.

Prereq: consent of instructor. Theoretical development of the bearing capacity theories, contact stress distributions and the development of plastic zones.

0852. Lateral Earth Pressures. Cr. 4.

Prereq: consent of instructor. Theoretical development of the lateral earth pressure theories on retaining structures and tunnels.

0860. Traffic Flow Theory. Cr. 4.

Prereq: C E 0762. Models of car following behavior and resultant stream flow processes with probabilistic headway distributions and reaction characteristics. Stream analyses as affected by vehicle entry and departure from queuing theory models of delay, inventory and other stochastic processes.

0861. Transportation Engineering Systems Analysis (I E 0861). Cr. 4.

Prereq: C E 0763. Techniques of systems engineering and operations research applied to the prediction of demand, development and evaluation of alternatives for transportation systems composed of various land, air and marine modes.

0862. Transportation Engineering Systems Design I. Cr. 3.

Prereq: C E 0765, I E 0558 or consent of instructor. Applications of fundamentals of engineering, planning, economics, psychology, operations research, to a specific major transportation problem by an interdisciplinary group of students working as a team.

0863. Transportation Engineering Systems Design II. Cr. 3.

Prereq: C E 0862. Continuation of Civil Engineering 0862.

0864. Transportation Engineering Systems Design III. Cr. 3.

Prereq: C E 0863. Continuation of Civil Engineering 0863.

0895. Special Topics in Civil Engineering III. Cr. 1-4.

Prereq: consent of adviser. Maximum of six credits in Special Topics may be earned in any one degree program. Topics to be announced in *Schedule of Classes*.

0899. Master's Thesis Research and Direction. Cr. 1-12 (12 required).

Prereq: consent of adviser.

0997. Doctoral Seminar. Cr. 2-6 (Max. 6).

Prereq: consent of doctoral adviser; coreq: C E 0999.

0999. Doctoral Dissertation Research and Direction. Credits to be arranged.

Prereq: consent of doctoral adviser. Maximum of ten credits may be elected before doctoral candidacy is obtained.

Electrical and Computer Engineering (ECE)

0100. Introduction to Electrical Engineering. Cr. 3.

Instrumentation, calculators, electrical circuits and electronic materials, work, power, energy, lasers, holography, bioengineering, and computers.

0202. (I E 0202) Probabilistic Methods in Engineering. Cr. 4.

Prereq: MAT 0211. Probabilistic models and analysis of data sets, permutations, combinations, probability definitions, distributions, random variables, expected values, variance, moments of random variables, applications to engineering problems.

0301. Introduction to Electrical Circuits. Cr. 4.

Prereq: PHY 0218. Introduction to network analysis. Electrical quantities and waveforms; resistance and Ohm's law; networks and Kirchoff's laws; network equivalents; nodal and mesh analysis; Thevenin's theorem and other network theorems.

0302. Electrical Circuits Laboratory I. (1,3). Cr. 2.

Prereq: ECE 0301. Introduction to electrical and electronic instrumentation with applications to measurements in simple electrical networks.

0304. (CHE 0304) Computational Methods in Engineering. Cr. 4.

Prereq: CSC 0285; coreq: MAT 0519. The application of numerical methods and FORTRAN programming to engineering problems. Methods for the solution of linear and non-linear algebraic equations, numerical integration, differentiation, error estimation and finite difference techniques.

0331. Network Analysis I. Cr. 4.

Prereq: ECE 0301 and MAT 0519. Continuation and expansion of Electrical and Computer Engineering 0301.

0350. Introduction to Physical Electronics. Cr. 4.

Prereq: MAT 0519. A self-contained treatment of those aspects of the electrical properties of semiconductors, the physical electronics of P-N junction and bipolar and field-effect transistors, and device fabrication technology that is essential to an understanding of semiconductor active devices and integrated circuits.

0351. Electronic Circuits I. (4,0). Cr. 4.

Prereq: ECE 0331. An introduction to the behavior of semiconductor and electron devices. Graphical and small-signal analysis. Equivalent circuits and single-stage circuits. Gain and bandwidth calculation.

0352. Electronics Laboratory I. (1,3). Cr. 2.

Prereq: ECE 0302 and 0351. Capabilities and uses of basic electronic instruments. Experimental investigation of electron and semiconductor devices and their behavior in single-stage circuits.

0381. Electromagnetic Fields and Waves I. Cr. 4.

Prereq: junior standing. Fundamentals of electromagnetic engineering, static electric and magnetic fields using vector analysis and fields of steady currents. Maxwell's equations and boundary value problems.

0400. Electrical and Computer Engineering Laboratories. Cr. 2.
Prereq: senior standing. Students select six out of nine experiments in various branches of electrical engineering.

0403. Noise and Sound Control in Environmental Engineering. Cr. 3.

Prereq: junior or senior standing in engineering. Principles of acoustics, sound, and noise; acoustical factors in engineering, architecture, and urban-renewal problems; acoustical instrumentation; control of sound and noise; assigned field problems.

0431. Network Analysis II. Cr. 4.

Prereq: ECE 0331. Complex frequency analysis, impedance functions, admittance functions, transfer functions, pole-zero configurations, Laplace transform analysis of networks, transform networks, Fourier series analysis, networks response to periodic excitation.

0435. Transmission of Energy and Signals. Cr. 4.

Prereq: ECE 0381 and 0431. Theoretical consideration of uniform lines over full-frequency range. Transmission equations, line parameters, termination, distortion, reflection, and loading. Two-terminal-pair networks.

0436. Electrical Circuits Laboratory II. (0,6). Cr. 2.

Prereq: ECE 0435. Experimental investigation of the transient and high frequency characteristics of electrical devices, networks, and transmission lines.

0441. Electromechanical Energy Conversion. Cr. 4.

Prereq: ECE 0431. Formulation of equilibrium equations for electromechanical systems in both classical and state-space form. Linear incremental concepts, general numerical solutions.

0447. Control Systems I. Cr. 4.

Prereq: ECE 0351 and 0441. Linearization techniques, steady-state errors, control-system specifications, frequency-response and root-focus techniques for meeting specifications; introduction to cascade compensation.

0451. Electronic Circuits II. Cr. 4.

Prereq: ECE 0351 and 0431. A continuation of Electrical and Computer Engineering 0351 which focuses attention on multi-stage amplifier, feed-back amplifiers, and special-purpose circuits.

0452. Electronics Laboratory II. (1,3). Cr. 2.

Coreq: ECE 0451. Laboratory investigations and design of multi-stage amplifier and special-purpose circuits.

0455. Electrical Engineering Materials. Cr. 4.

Prereq: ECE 0381 and 0350. A study of the science of materials and an interpretation of the electrical properties which are important in the study of electrical and electronic devices.

0461. Electronic Digital Circuit Analysis. Cr. 4.

Prereq: ECE 0351. Introduction to electronic digital devices and circuits including analysis of various logic gates using several techniques of implementation such as transistor-transistor logic (TTL), emitter-coupled logic (ECL), encoding/decoding circuits, diode matrices, counters, clocks, pulse distributors.

0466. Computer Aided Design. Cr. 4.

Prereq: ECE 0351. Computer solution of linear and nonlinear systems by computer-aided design languages such as LISA and PCAP.

0468. Fundamentals of Logic Design. Cr. 4.

Prereq: junior standing. Introduction to general concepts of digital circuit design including number systems, switching algebra, sequential circuits, switching components and elementary computer design.

0477. Introduction to Communication Theory. Cr. 4.

Prereq: ECE 0202 and 0431. Basic information transmission concepts. Spectral analysis. Transmission through linear networks. Sampling principles. Digital and analog communication signals and systems.

0481. Electromagnetic Fields and Waves II. Cr. 4.

Prereq: ECE 0381. Plane waves in material media, polarization, reflection and transmission of waves at boundaries. Poynting vector and power flow. Transmission lines, waveguides, resonators, antenna and radiation.

0482. Fields and Waves Laboratory. Cr. 2.

Prereq: ECE 0381; coreq: ECE 0481. A four hour laboratory each week covering topics in electrostatic, microwave propagation and detection, dielectric properties of materials, guided waves, magnetic interactions, radiation and scattering, optics and acoustics.

0485. Introduction to Engineering Optics. Cr. 4.

Prereq: ECE 0381. Introduction to contemporary optical engineering. The fundamental principles of geometrical optics, wave properties of light, Fourier optics and interaction of light and matter.

0490. Directed Study. Cr. 1-3 (Max. 6).

Prereq: senior standing; consent of adviser. Supervised study and instruction in the field selected by the student. An outline of proposed study must be submitted to and approved by instructor prior to election of course.

0497. Seminar. Cr. 2.

Prereq: senior standing in electrical and computer engineering. Reports, discussions of current topics of special interest in electrical and computer engineering.

0501. Electrical Energy by Direct Conversion. Cr. 4.

Prereq: ECE 0381 and 0350. Methods of converting thermal, nuclear, solar, and chemical energy directly into electrical energy. Characteristics of thermoelectric devices and materials, thermionic converters, magnetohydrodynamic engines, photovoltaic devices, and fuel cells.

0504. Numerical Methods for Engineers (CHE 0504). Cr. 3.

Prereq: MAT 0519 and ECE 0304. Ordinary and partial differential equations of engineering by modern numerical methods, including digital computation aspects.

0514. Electric Power System Analysis. Cr. 4.

Prereq: ECE 0431. Electric power transmission and distribution systems, equivalent circuits and models of electric power systems components, per-unit representation load-flow determination in simple power networks, analysis using symmetrical components.

0533. Introduction to Nonlinear Circuit Theory. Cr. 4.

Prereq: ECE 0431 or consent of instructor. Nonlinear network theory including graph theory, topological analysis of networks, tree, normal tree and state equation of dynamic nonlinear networks.

0540. Electromagnetic and Electromechanical Machines. Cr. 3.

Prereq: ECE 0301. Fundamental discussion underlying the operation of electromagnetics, reactors, transformers and rotating electro-magnetic machines.

0541. Modern Technologies Applied to Industrial Motor Control. Cr. 3.

Prereq: ECE 0301. Demonstrates the techniques that have made possible new levels of precision in controlling processes, machines and motors.

0542. Fractional and Subfractional Horsepower Electric Motors. Cr. 3.
Prereq: ECE 0301. Small electric motors, their circuits and their functions. Essential principles of induction motors in single phase and three phase as well as direct current motors.

0543. Electric Energy Systems Engineering I. Cr. 4.
Prereq: ECE 0441 or consent of instructor. Transmission capacity, load characteristics, power frequency control. Energy system component analysis and modeling. Steady-state analysis, load-flow problem and algorithms, optimal dispatch.

0547. Control Systems II. Cr. 4.
Prereq: ECE 0447. Continuation of cascade and feedback compensation techniques using root-locus and frequency-response methods, multiloop systems, describing functions and phase-plane techniques; introduction to the state-space formulation and Liapunov's direct method.

0548. Systems and Control Laboratory. (0,6). Cr. 2.
Prereq: ECE 0447. Response of electromechanical devices and mechanisms in open- and closed-loop systems. Cascade and feedback compensation techniques. Projects involving hydraulic and pneumatic systems can be arranged.

0551. Solid-State Electronics I. Cr. 4.
Prereq: ECE 0350 and 0381. Physical basis for the energy band structure of solids with particular emphasis on semiconductors. Extrinsic and intrinsic semiconductors. Static behavior of P-N junctions. Basic principles associated with solid state devices. Insulators and magnetic materials.

0552. Solid State Electronics Laboratory. (0,6-12). Cr. 2-4.
Prereq: ECE 0551 or consent of instructor. Experimental projects on solid state materials and devices. Experiments on material preparation, characterization, fabrication and parameter measurements of devices.

0553. Communications Circuits. Cr. 4.
Prereq: ECE 0351. Amplitude, frequency, and pulse modulation; detection; operational amplifiers; introduction to linear integrated circuits.

0556. Pulse Circuits. Cr. 4.
Prereq: ECE 0431 and 0451. Study of wave-shaping circuits, timing circuits, and trigger circuits. Theory, production, and utilization of pulses. Laboratory demonstrations.

0557. Solid State Electronics II. Cr. 4.
Prereq: ECE 0551. Advanced concepts of the electronic properties of solid state devices. Application to bipolar and field effect transistors, and semiconductor surface devices.

0558. (M E 0558) Engineering Physiology (I E 0553). Cr. 3.
Prereq: senior standing or consent of instructor. The basic principles of human physiology presented from the engineering viewpoint. Bodily functions, their regulation and control discussed in quantitative terms and illustrated simple mathematical models when feasible.

0559. (M E 0559) Biinstrumentation (I E 0559). Cr. 3.
Prereq: ECE 0301 and 0558. Engineering principles of physiological measurements, signal conditioning equipment, amplifiers, recorders and transducers. Recent advances in instrumentation.

060. Electronic Analog Computers I. Cr. 4.
Prereq: ECE 0351 and 0431. Theory and design of electric com-

puters of the analog type. Basic principles and techniques employed. Considerations of various mathematical operations and the circuits which will perform them.

0561. Electronic Analog Computers II. Cr. 4.
Prereq: ECE 0447 and 0560. Theory and solution of partial differential equations and simultaneous algebraic equations on the analog computer. Simulation of stationary and non-stationary random processes. Error analysis of computer components.

0567. Bioelectronics I (M E 0567). (2,3). Cr. 3.
Prereq: ECE 0559 or consent of instructor. Investigation of an approved research project in the area of bioelectronics.

0568. Switching Circuits I. Cr. 4.
Prereq: senior standing. Combinational switching circuits. Axiomatic introduction to Boolean algebra with switching theory developed as a special case. Techniques for the minimization of single and multiple-output switching functions.

0569. Digital Laboratory I. (1,3). Cr. 2.
Prereq. or coreq: ECE 0568. Laboratory experiments pertaining to combinational circuits and components such as AND, OR, NAND, NOR, INVERTERS, and EXCLUSIVE-OR gates.

0571. Statistical Communication Theory. Cr. 4.
Prereq: ECE 0477. Random signals and noises, optimal signal detection and filtering, transmission of information, modern communication techniques as applied to decision and estimation theory.

0572. Electrophysiology (CHE 0572) (MES 0572). Cr. 3.
Prereq: ECE 0381, 0558 or consent of instructor. Mathematical techniques to describe the electrical behavior of nerve and muscle. Natural electrical sources in the physiological system; propagation of energy to various parts of the system.

0577. Digital Signal Processing. Cr. 4.
Prereq: ECE 0477 or consent of instructor. Analysis of discrete signals and systems. Applications to digital filtering, digital communication, and encoding.

0581. Electromagnetic Fields and Waves III. Cr. 4.
Prereq: ECE 0481. Detailed treatment of specialized topics in wave phenomena. Subject matter selected to fit the needs and interests of the students.

0582. Theory of Optical Systems I. Cr. 4.
Prereq: ECE 0481, MAT 0521. Derivation of geometrical optics from Maxwell's equations, polarization and the transport of energy, Hamilton's theory of optics, applications to antennas and wave propagations.

0583. Microwaves. Cr. 4.
Prereq: ECE 0581. Velocity modulation and klystron theory, traveling wave tubes, cavity magnetrons, microwave networks, detection and measurements.

0584. Coherent Optics Laboratory. Cr. 2.
Prereq: ECE 0585. Experiments on diffraction, spectrum analysis, holography, nonlinear effect, spatial multiplex information storage, optical convolution and correlation, complex spatial filtering, and imaging through turbulence.

0585. Holography and Data Processing I. Cr. 4.
Prereq: ECE 0381. Introduction to optical data processing information and the theory of wave front reconstruction.

0586. Solid-State Microwave Electronics. Cr. 3.

Prereq: ECE 0351, 0481; senior standing. Applications of solid state devices in the microwave region. Tunnel diodes, avalanche diodes, and Gunn diodes.

0587. Introduction to Lasers. Cr. 4.

Prereq: ECE 0350. The fundamental principles of laser operation and a survey of the characteristics and applications of the major types of lasers currently in operation.

0588. Applications of Lasers. Cr. 4.

Prereq: ECE 0587. Engineering applications of lasers. Design considerations for full systems and subsystems. Optical communication systems. Modulation. Beam steering. Pollution monitoring. Data storage and manipulation.

0590. Directed Study. Cr. 1-3 (Max. 6).

Prereq: admission to MSEE program, approval of outline of proposed study by adviser and chairman prior to registration. Supervised study and instruction in the field selected by the student.

0595. Special Topics in Electrical and Computer Engineering I. Cr. 1-4.

Prereq: consent of instructor. Maximum of twelve credits in Special Topics may be elected in any one degree program. A consideration of special subject matter in electrical and computer engineering. Topics to be announced in *Schedule of Classes*.

0604. Mathematical System Theory. Cr. 3.

Prereq: consent of instructor. Properties and characteristics of systems. System interconnections, time-evolution and types of causalities.

0614. Rotating Electromechanical Energy Converters. Cr. 4.

Prereq: ECE 0441. Kronprimitive machine formulation and its applications to the analysis of d-c commutator, a-c synchronous and induction machines operating characteristics. Machine equivalent circuits. Techniques for computer modeling including non-linear effects.

0616. Transients in Electric Power Systems. Cr. 4.

Prereq: ECE 0514 or equiv. Transient electric system phenomena; lightning and switching surges, insulation coordination.

0619. (CHE 0660) Fusion Engineering (M E 0660). Cr. 3.

Prereq: consent of instructor. Introduction to physical processes involved in nuclear fusion. Magnetically confined plasmas and laser induced fusion. Current status and economics.

0631. Linear Systems. Cr. 4.

Prereq: ECE 0447. Basic concepts of system theory; system functions and their properties; time-invariant linear systems; stability, controllability and observability; time-varying systems.

0633. Nonlinear Network Theory. Cr. 4.

Prereq: ECE 0533 or consent of instructor. Analysis of nonlinear resistive and dynamic networks, including the theories of the existence and uniqueness of solution, stability and computational methods.

0635. Foundations of Optimization (I E 0661). Cr. 4.

Prereq: senior and graduate engineering students or consent of instructor. Optimization theory; resume of topological properties of E^n , functions of many variables; systems of linear equalities and inequalities; convex and concave functions; LaGrange multipliers and their interpretation, duality; linear and nonlinear programming; necessary conditions for optimality in mathematical

programming; Kuhn-Tucker theory; methods of optimum search; gradient and steepest ascent; geometric programming; application to engineering design problems.

0643. Electric Energy Systems Engineering II. Cr. 4.

Prereq: ECE 0543. Continuation of Electrical and Computer Engineering 0543. Load-frequency control, transient stability, application of modern optimal control theory to improved power system operation and reliability.

0644. Modern Control Theory I. Cr. 4.

Prereq: ECE 0447. System representation in state-variable form, solution of linear state-space equations, the state-transition matrix, eigenvalue-eigenvector concepts, functions of a matrix, linear time-varying systems, stability, observability, and controllability of linear systems.

0651. Design of Electronic Digital Circuits. Cr. 4.

Prereq: ECE-0451 and 0468. Introduction to digital circuit design including review of device modules, logic and storage circuits, switching speeds and other considerations involved in the design of digital circuits.

0653. Physiological Control Systems. Cr. 3.

Prereq: ECE 0558 or equiv. Physiological systems utilization control and system theoretic concepts.

0654. Bioelectronics II (M E 0654). (2,3). Cr. 3.

Prereq: ECE 0567. Continuation of Electrical and Computer Engineering 0567.

0658. (M E 0658) Mathematical Modeling in Bioengineering (I E 0658). Cr. 3.

Prereq: ECE 0558, M E 0341 or ECE 0431. Mathematical models that simulate physiological or anatomical function. Models of the nervous and vascular systems, models for impact acceleration and current topics in bioengineering.

0660. Selected Topics in Combinational Circuits. Cr. 3.

Prereq: ECE 0568. Study of several topics in combinational circuits that are of current importance in research. These topics will be included: multivalued logic, threshold logic, decomposition of combinational functions, e.g., fault-tolerant design, iterative consensus, and logically passive circuits.

0666. Logical Design of Digital Computers I. Cr. 4.

Prereq: ECE 0568. Structural and organization of digital computers from large to small scale. Logical design of the components that make up a digital computer; memories, arithmetic-logic units, registers, I/O ports. Special consideration given to the currently available technology.

0668. Switching Circuits II. Cr. 4.

Prereq: ECE 0568. Sequential switching circuits. Tabular methods for the formulation, analysis and synthesis of fundamental and pulse-mode sequential circuits. Treatment of state reduction, hazards and races. Iterative circuits presented in analogy to sequential circuits.

0669. Digital Laboratory II. (1,3). Cr. 2.

Prereq. or coreq: ECE 0668. Laboratory experiments using digital integrated circuits as they pertain to sequential switching circuits.

0685. Holography and Data Processing II. Cr. 4.

Prereq: ECE 0585. A continuation of Electrical and Computer Engineering 0585 in the study of coherent optical systems and specific topics in current optical research as applied to holography engineering.

Enrollment in the following courses is limited to graduate students.

0704. Mathematical Methods in Engineering I. Cr. 4.

Prereq: MAT 0523 or consent of instructor. Metric, linear vector, normed, and inner product spaces, mappings and functionals. Fixed-point and LaGrange-complement techniques. Engineering applications to system, control, signal, and field theory.

0705. Mathematical Methods in Engineering II. Cr. 4.

Prereq: ECE 0704. Continuation of Electrical and Computer Engineering 0704. Linear and dual spaces, linear-operator theory, duality theorems, perturbation and optimization techniques. Engineering applications to system, control, signal, and field theory.

0731. Network Synthesis I. Cr. 4.

Prereq: ECE 0631 or consent of instructor. Introduction to realizability theory. Review of positive real functions. Contemporary techniques for synthesis of prescribed driving-point functions. Two-port synthesis and synthesis of prescribed transfer functions.

0744. Modern Control Theory II. Cr. 4.

Prereq: ECE 0644. Stability theory, variational calculus in optimum control, introduction to the principle of maximum and dynamic programming.

0746. Optimum Design of Large Scale Systems. Cr. 4.

Prereq: ECE 0644. Optimum control of multivariable processes; of processes with inaccessible state variables; optimum estimation of state variables; optimum control for random-parameter processes.

0747. Control Systems III. Cr. 4.

Prereq: ECE 0547. Optimization of stochastic systems. Continuous and stochastic sampled-data systems, real-time computer element applications, pulse-width modulation, systems of class interest.

0751. Advanced Solid State Electronics I. Cr. 4.

Prereq: ECE 0557 or consent of instructor. Review of solid state theories. Electrical conductivity, relaxation times, and the Boltzmann equation. Mobility, Hall effect, contacts and application to negative differential conductivity devices such as the Gunn diode.

0754. Advanced Solid State Electronics II. Cr. 4.

Prereq: ECE 0557 or consent of instructor. Current topics in solid state phenomena and devices such as heterojunctions, solar cells, light emitting and laser diodes, and amorphous semiconductors.

0757. Topics in Solid State Electronics. Cr. 4.

Prereq: ECE 0557 or consent of instructor. Further topics in solid state phenomena and devices including metal-semiconductor barriers, metal-semiconductor junction behavior, photoemissive cathodes and amorphous devices, such as switching and memory units.

0759. Topics in Biomedical Engineering (CHE 0759). Cr. 3.

Prereq: consent of instructor. Seminar course covering current research problems in biomedical engineering. Weekly presentations are made by students, faculty and outside speakers. Members of the faculty attend and take responsibility for leading the discussions.

0761. Parallel Processors and Processing. Cr. 4.

Prereq: ECE 0666. Study of various parallel processor designs and their applications. Associative, pipeline and other multi-processing schemes. Circuit implementation of data manipulating operations, sorting networks and other components used for parallel processing.

0762. Iterative Arrays and Cellular Automata. Cr. 4.

Prereq: ECE 0668. Introduction to structures of interconnected identical logical machines. Analysis and synthesis procedures for iterative arrays. Representation by regular expressions; identification by experiment; decomposition into simpler arrays.

0766. Logical Design of Digital Computers II. Cr. 4.

Prereq: ECE 0666 and MAT 0542. Continuation of Electrical and Computer Engineering 0666. The logical design of digital computers.

0773. Stochastic Processes and Noise I. Cr. 4.

Prereq: ECE 0571 and 0704. Measure and probability spaces, random functions. Gaussian, Markov, and Poisson processes; conditional probability and expectation. Engineering applications to noise and optimal filtering theory.

0774. Stochastic Processes and Noise II. Cr. 4.

Prereq: ECE 0773. Foundations of general decision and estimation theory. Engineering applications to modern signal detection and estimation.

0775. Information Theory. Cr. 4.

Prereq: ECE 0773 or MAT 0580. Introduction to mathematical concepts and techniques of the transmission of information theory as applied to the statistical communication system.

0776. Signal Theory. Cr. 4.

Prereq: ECE 0773. Introduction to the concepts and techniques of probability theory as applied to stochastic signal processes and noise.

0777. Pattern Recognition. Cr. 4.

Prereq: ECE 0773. Statistical methods in pattern recognition. Estimation, feature extraction, and classification. Applications of pattern recognition techniques.

0778. Data Communications. Cr. 4.

Prereq: ECE 0571 and 0577. Characteristics and limitations of communication channels. Reliable and efficient data communication techniques for noisy channels. Reliability and message flow in data communication networks. Descriptions of existing networks.

0781. Antennas and Propagation. Cr. 4.

Prereq: ECE 0581. Physical principles of radiation; directive radiation, antenna currents; impedance, reciprocity, and equivalence; general theory of linear antennas; linear antenna systems; special antennas.

0782. Theory of Optical Systems II. Cr. 4.

Prereq: ECE 0582, MAT 0523. Diffraction optics and applications: antennas, optical data processing, radar cross sections.

0783. Electromagnetic Theory and Applications I. Cr. 4.

Prereq: ECE 0481 or consent of instructor. Wave propagation in material media including plane, cylindrical and spherical waves in anisotropic, dispersive and inhomogeneous media, interior boundary value problems, microwave network, slow wave and periodic structure.

0784. Electromagnetic Theory and Applications II. Cr. 4.

Prereq: ECE 0783 or consent of instructor. Scattering and diffraction of waves, exterior boundary value problems, Fourier transformation, Green's function, and integral equation techniques, saddle point, WKBJ and other approximation methods.

0785. Topics in Wave Phenomena. Cr. 4.

Prereq: ECE 0783 or 0784. Topics of current research interest, applications in biomedical engineering, oceanography, atmospheric sciences, geophysics and astronomy.

0787. Quantum Theory of Lasers. Cr. 4.

Prereq: ECE 0587 or consent of instructor. Review of quantum mechanics; Lamb theory of the laser, nonlinear optics, harmonic generation, stimulated scattering, nonlinear light propagation.

0790. Directed Study. Cr. 1-3 (Max. 9).

Prereq: consent of adviser and chairman and engineering graduate officer. Supervised study and instruction in an advanced topic. Outline of proposed study and petition must be submitted to graduate committee in advance.

0795. Special Topics in Electrical and Computer Engineering II. Cr. 1-4.

Prereq: consent of instructor. Maximum of eight credits in Special Topics may be elected in any one degree program. A consideration of special subject matter in electrical and computer engineering. Topics to be announced in *Schedule of Classes*.

0796. Research. Cr. 1-4 (Max. 9).

Prereq: consent of adviser and chairman. Design, investigation, and experimental work on some phase of electrical and computer engineering. Written report required.

0797. Seminar. Cr. 1.

Prereq: master's candidacy and consent of graduate adviser. Discussion of topics in electrical and computer engineering.

0799. Master's Essay Direction. Cr. 3.

Prereq: consent of adviser.

0806. Mathematical Methods in Engineering III. Cr. 4.

Prereq: ECE 0704. Topological, metric, Banach, and Hilbert spaces, functionals and generalized functions; contraction, monotone, and potential mappings; fixed-point and Hahn-Banach theorems. Engineering applications to optimization, nonlinear optimal control, system, signal, and field theory.

0831. Network Synthesis II. Cr. 4.

Prereq: ECE 0731. Scattering matrices. Insertion-loss synthesis of filters. Two-port synthesis techniques. Reciprocal and nonreciprocal n-ports. Active RC networks. Sensitivity. The approximation problem.

0873. Modulation Theory. Cr. 4.

Prereq: ECE 0773. Analog and digital modulation systems, their spectral properties, and their performance in the presence of noise.

0899. Master's Thesis Research and Direction. Cr. 1-12 (12 required).

Prereq: consent of graduate adviser.

0997. Doctoral Seminar. Cr. 2-6 (Max. 6).

Prereq: consent of doctoral adviser; coreq: ECE 0999.

0999. Doctoral Dissertation Research and Direction. Credits to be arranged.

Prereq: consent of doctoral adviser. No more than ten credits may be elected before doctoral candidacy is obtained.

Industrial Engineering (IE)

0202. Probabilistic Methods in Engineering (ECE 0202). Cr. 4.

Prereq: MAT 0211. Probabilistic models and analysis of data sets, permutations, combinations, probability definitions, distributions, random variables, expected values, variance, moments of random variables, applications to engineering problems.

0210. Introduction to Systems Engineering. Cr. 4.

Prereq: MAT 0180 or equiv. Systems approach; elements of a system; function, input, output, environment, modeling, feedback, adaptive control, delay, noise, stability, optimization, reliability human interaction. Basic concepts illustrated with help of examples from industry, health and criminal justice.

0450. Industrial Organization. Cr. 4.

Prereq: junior standing. Principles and types of organizations, departmental functions, plant location and layout, job study, production control, wage payments, motion and time study, quality control and an appreciation of the human problems in industry.

0453. Quantitative Aspects of Social Phenomena. Cr. 4.

Prereq: MAT 0519 and IE 0202 or equiv. Social phenomena examined using mathematical models. Exponential growth with saturation, coupled non-linear equations, extreme values and traffic stability.

0480. Industrial Safety. Cr. 3.

Prereq: IE 0450 or MGT 0360. Application of industrial safety by the industrial engineer. Proper operating methods, machine guarding, environmental control, protective equipment, safety campaigns and accident costs and evaluation.

0490. Directed Study. Cr. 1-9 (Max. 9).

Prereq: senior standing; consent of chairman. Supervised study and instruction in the field selected by the student. An outline of proposed study must be submitted to and approved by instructor and department chairman prior to election of course.

0496. Research. Cr. 1-9 (Max. 9).

Prereq: consent of chairman. Design investigation, or experimental work by the student in the selected field. An outline of proposed activity must be submitted to and approved by instructor and department chairman prior to election of course.

0497. Industrial Engineering Seminar. Cr. 2.

Prereq: senior standing. Reports and discussion of current topics of special interest.

0508. (ME 0508) Dynamics of Problem Solving. Cr. 4.

Prereq: MAT 0519. Introduction to problem solving techniques, probability and information theory, modeling in engineering, physical and social sciences, decision making, optimization and dynamic system models.

0511. Introduction to Human Factors Engineering. Cr. 4.

Prereq: consent of instructor. The behavioral characteristics of man which affect the performance of man-machine systems. Problems of psychological and physiological measurements. Sensory, information processing and motor abilities of man which affect system performance. Theoretical and methodological considerations.

0512. Work Measurement. (3,2). Cr. 4.

Prereq: IE 0450, 0511 and CSC 0285. Introduction to the operation function including operation and control of industrial a service systems. Work systems analysis, process and operati

analysis, job design and work measurement; flow charting of system operations and applications to computer simulation; student projects.

0514. Elements of Reliability and Quality Control. Cr. 4.

Prereq: MAT 0213, 0214. No credit for industrial engineering students. Concept of variability engineering problems, probability theory, system reliability models and statistics. Applications in reliability and design. Statistical inference, use of the exponential and Weibull distribution in engineering applications.

0521. Systems Engineering. Cr. 4.

Prereq: IE 0557, 0587. Formulation and diagnosis of systems. Systems definition (diagrams, hierarchies and the law of requisite variety); systems analysis (testing, logic, and simulation); and systems treatment (implementation and improvement).

0532. Production Control. Cr. 4.

Prereq: IE 0512 and 0554. A continuation of Industrial Engineering 0512; the design of production planning and control systems. Forecasting, inventory control, aggregate planning, scheduling for different production systems, the planning and scheduling for large scale projects, and discussion of the design of computerized production control systems.

0533. Facilities Design. (3,2). Cr. 4.

Prereq: IE 0521, 0532. The design of facilities including plant location, layout, material handling and maintenance systems and the use of computer programs and digital simulation techniques. Analysis of control and operating problems including quality and financial control. Basic principles of management information systems and their applications to the operations function. Case studies and problems.

0536. Quality Control. Cr. 4.

Prereq: IE 0554 or equiv. Attribute sampling plans, variables sampling plans, control charts, process capability analysis, chain sampling, quality costs and organization for a quality product.

0551. (ME 0551) Machine Design II. (2,3). Cr. 4.

Prereq: ME 0451. Feasibility, decision theory, optimization, legal problems (liability), reliability, styling, marketing, distribution, and cost as they are related to design.

0553. (ME 0558) Engineering Physiology (ECE 0558). Cr. 3.

Prereq: senior standing or consent of instructor. Basic principles of human physiology from the engineering viewpoint. Bodily functions, their regulation and control discussed in quantitative terms and illustrated by simple mathematical models when feasible.

0554. Foundations of Reliability and Quality Assurance. Cr. 4.

Prereq: IE 0202 or equiv. Data display and reduction, sampling statistics and their distributions. Testing of hypothesis, contingency, goodness of fit, control charts, tolerance limits, exponential and Weibull models for reliability and life testing.

0555. Engineering Data Analysis. Cr. 4.

Prereq: IE 0554. Continuation of Industrial Engineering 0554. Data analysis and summarization, distribution model selection, estimation of process characteristics, and testing for product or process improvements.

0556. Operations Research I. Cr. 4.

Prereq: MAT 0213; coreq: CSC 0285. Introduction to operations research and model formulation. Linear programming models, the dual problem, the simplex and revised simplex methods, the primal problem, sensitivity analysis and optimization in networks.

0557. Operations Research II. Cr. 4.

Prereq: IE 0554 or equiv. Decision theory considering evaluation of alternatives, value of information and decision trees; game theory considering zero-sum; two-person games, solution methods, and extensions; queuing theory as a means for studying stochastic service systems.

0558. Operations Research III. Cr. 4.

Prereq: IE 0556 or equiv. Introduction to dynamic programming, non-linear optimization, integer programming, inventory models, and Markov chains.

0559. (ME 0559) Bioinstrumentation (ECE 0559). Cr. 3.

Prereq: ECE 0301 and IE 0553. Engineering principles of physiological measurements. Signal conditioning equipment, amplifiers, recorders and transducers. Recent advances in instrumentation.

0562. Experimental Design. Cr. 4.

Prereq: IE 0554 or equiv. Principles of quantitative model construction for industrial and institutional processes; scale construction, validity testing, and multi-factor testing in man-machine systems; experimental designs.

0582. Senior Design Project I. (1,9). Cr. 4.

Prereq: senior standing. Project involving the collection of data and the development of a new system considering human activities involved, safety, optimization and reliability. Project areas to be selected from industry, health, criminal justice or government. Preparation of engineering report covering the new system.

0583. Senior Design Project II. (1,9). Cr. 4.

Prereq: senior standing; IE 0582. Continuation of Industrial Engineering 0582.

0587. Engineering Economy. Cr. 4.

Prereq: junior standing. Investment alternatives in industrial and governmental enterprises; application of present worth, equivalent uniform cash or benefit flow, rate of return, and benefit-cost ratio techniques for deciding among alternatives; study of effects of depreciation methods, taxation, and financing on decision making; sensitivity analysis and expected value decision making.

0595. Special Topics in Industrial Engineering I (ENV 0595). Cr. 1-4.

Prereq: consent of chairman. Maximum of six hours of Special Topics credit in any one degree program. Special subject matter in industrial engineering. Topics to be announced in *Schedule of Classes*.

0613. Simulation Methods. Cr. 4.

Prereq: CSC 0285, IE 0554 or equiv. Introduction to simulation concepts. Large scale continuous systems such as industrial dynamics modeled and simulated using CSMP or DYNAMO computer languages. Discreted systems modeled and simulated using GPSS or SIMSCRIPT computer languages. Applications involving inventory systems and queuing systems are considered.

0631. Foundations of Operations Engineering. Cr. 4.

Prereq: IE 0202. No graduate credit for majors. Fundamental theories and concepts in the design and analysis of a production system. Production design, material flow charting, work measurement, plant layout, quality assurance and inventory control. Applications to both production and urban systems.

0641. Decision Analysis. Cr. 4.

Prereq: IE 0557 or 0554 and 0651. A first course in optimal decision making based upon probabilistic, econometric, and behavioral models. Applications to engineering design problems.

0651. Foundations of Operations Research. Cr. 4.

Prereq: MAT 0213, coreq: CSC 0285. No graduate credit for majors. Model formulation and computer aided solution methods for linear, nonlinear, and stochastic systems. The basic concepts of linear programming for efficient use and interpretation of computer codes. Game theory, queuing theory, and simulation with emphasis on computer solution. Various commercially available nonlinear and integer computer codes.

0653. Industrial Dynamics I. Cr. 3.

Prereq: senior and graduate engineering standing or consent of instructor. The study of information feedback characteristics of industrial activity to show how organizational policies and system delays interact to influence the process of the enterprise.

0658. (ME 0658) Mathematical Modeling in Bioengineering (ECE 0658). Cr. 3.

Prereq: ME 0558 or ECE 0558; ME 0341 or ECE 0431. Mathematical models that simulate physiological or anatomical function. Models of the nervous and vascular systems, models for impact acceleration and current topics in bioengineering.

0661. Foundations of Optimization (ECE 0635). Cr. 4.

Prereq: senior and graduate engineering students or consent of instructor. Optimization theory; resume of topological properties of E^n ; functions of many variables; systems of linear equalities and inequalities; convex and concave functions; LaGrange multipliers and their interpretation, duality; linear and nonlinear programming; necessary conditions for optimality in mathematical programming; Kuhn-Tucker theory; methods of optimum search; gradient and steepest ascent; geometric programming; application to engineering design problems.

0663. Introduction to Transportation Science (CE E 0663). Cr. 4.

Prereq: IE 0557 or equiv. Theoretical developments in operations research for describing traffic flow for highway, railway, and advanced automated systems of ground transport.

0671. Foundations of Stochastic System Design. Cr. 4.

Prereq: IE 0554. Basic concepts in Markov chains and stochastic processes with application to consumer demand analysis, inventory control, decision processes, production control and facilities planning.

0681. Engineering Administration I. Cr. 4.

Prereq: engineering degree. Engineering organization as a system. Organization analysis techniques. Organizational structures. Research and development, product design, industrial engineering supporting services.

0685. Management Information Systems Design. Cr. 4.

Prereq: CSC 0285 and IE 0532 or 0631. Hardware and software concepts, needs analysis, project planning and control, economic evaluation, operation problems in information system.

Enrollment in the following courses is limited to graduate students.

0700. Inventory Theory. Cr. 4.

Prereq: IE 0554, 0661. Cost considerations in inventory management, demand forecasting techniques, buffer stock determination, study of different inventory policies, lot size reorder point models, periodic review models, static and dynamic inventory models, steady state inventory models.

0712. Human Factors in Design. Cr. 3.

Prereq: IE 0511, 0562. Human factors in the design, evaluation,

and maintenance of systems. Original research in human factors. Detailed theoretical and methodological consideration of signal detection theory, information theory, memory decision making, psychomotor performance, and performance under stress. Man as a system component is the organizing theme.

0725. Network Flows. Cr. 4.

Prereq: IE 0661. Introduction to graph theory; undirected graphs, directed graphs, distances on graphs, and matrix representation of graphs. Introduction to networks; shortest path methods, maximal flow, transportation, relationship to mathematical programming, multi-terminal flows, and multi-commodity flows.

0736. Advanced Topics in Quality Control. Cr. 4.

Prereq: IE 0536, 0555, 0661. Review of the theoretical aspects of quality control systems design. Research areas related to quality control systems design; theoretical basis, potential applications, and extensions.

0738. Theory of Scheduling. Cr. 4.

Prereq: IE 0558 or 0661. Framework for scheduling, job shop scheduling, network problems related to scheduling, dynamic sequencing problems, experimental studies in job shop scheduling. Assigned readings in scheduling literature.

0747. Cybernetics of Urban Systems I (S W 0871). Cr. 4.

Prereq: consent of instructor. Economic, institutional, ecological, political and physical subsystems of the urban area. How these subsystems interrelate and can be made more responsive to human needs.

0748. Cybernetics of Urban Systems II (S W 0872). Cr. 4.

Prereq: IE 0747. Multi-disciplinary structural analysis of urban systems through the methods and models of systems engineering, political science, economic geography, and management science; the issue of centralization and decentralization.

0749. Cybernetics of Urban Systems III (S W 0873). Cr. 4.

Prereq: IE 0748. Multi-disciplinary assessment of the roles of knowledge, social values, and power in the conscious transformation of urban areas.

0753. Industrial Dynamics II. (2,3). Cr. 3.

Prereq: IE 0653. A continuation of Industrial Engineering 0653 with emphasis of systems modeling.

0761. Mathematical Programming. Cr. 4.

Prereq: IE 0661 or consent of instructor. Convexity, theory of simplex method, degeneracy and convergence, revised and dual simplex, duality, parametric programming, complementary pivot theory, bounded variable and decomposition theory.

0762. Optimal Control Theory. Cr. 4.

Prereq: IE 0661. Basic definitions; geometric aspects of optimal processes; dynamic programming and principles of optimality; discrete optimal control theory and discrete maximum principle; continuous optimal control systems and Pontryagin's maximum principle; relationship to dynamic programming.

0763. Applied Dynamic Programming. Cr. 4.

Prereq: IE 0661. Use of applied dynamic programming to solve complex optimization problems in operations research and multistaged sequential decision making processes, principle of optimality, computational aspects and sensitivity analysis, optimization under uncertainty and stochasticity.

0764. (CE 0764) Economic Analysis in Transportation Systems Planning. Cr. 4.

Prereq: ECO 0102 and consent of instructor. Application of engineering economy and price theory in optimization of transportation systems designs functioning primarily in an urban environment; congestion costs, externalities, primary and secondary costs and benefits, and peak period pricing; case studies.

0765. Field Studies in Modern Urban Programs. (2,4). Cr. 4.

Prereq: IE 0565. Must be elected immediately after Industrial Engineering 0565. Application of systems analysis, evaluation models, and social accounting to ongoing or completed urban programs in the Detroit area.

0767. Nonlinear Optimization Techniques. Cr. 4.

Prereq: IE 0661 and 0761. Use of nonlinear optimization and programming techniques to obtain optimal solutions of complex systems, Kuhn-Tucker theory and its applications; optimum seeking methods; gradient techniques; feasible direction algorithms, review and application of the current literature.

0782. Engineering Administration II. Cr. 4.

Prereq: IE 0681. Organization and operation of engineering, research, and related phases in relation to organization development; the functions of planning; assigning, directing, measuring, controlling. Case studies.

0783. Engineering Administration III. Cr. 4.

Prereq: IE 0554 and 0681. Management and control of engineering and manufacturing projects and systems. Allocation and balancing of manpower and facilities. PERT, PERT cost, CPM.

0784. Production Planning. Cr. 4.

Prereq: IE 0661. Advanced production planning and smoothing techniques. Use of recent operations research techniques in planning of production and inventory for large scale systems.

0786. Reliability Engineering. Cr. 4.

Prereq: IE 0554. Failure distribution, life testing and parameter estimation; series and parallel system models; reliability improvement, and cost optimization.

0787. Reliability in Engineering Design. Cr. 4.

Prereq: IE 0555. Failure analysis and probabilistic design methodology. Computation of functions of design random variables. Design reliability computations for various distributions. Reliability computations to consider correlated and stochastic variables. Design and reliability project. Design examples.

0788. Reliability Optimization. Cr. 4.

Prereq: IE 0661, 0786. Advanced topics in area of design and reliability optimization and trade-off analysis. Reliability allocation models. Reliability economics and cost trade-offs with respect to reliability, maintainability, performance characteristics and safety. Optimization techniques using special structure of design problems. Optimization and design project.

0790. Directed Study. Cr. 1-9 (Max. 9).

Prereq: consent of adviser, chairman and engineering graduate officer. Student selects some field of industrial engineering for advanced study and instruction. An outline approved by the instructor must be presented before registration in this course.

0795. Special Topics in Industrial Engineering II. Cr. 1-4.

Prereq: consent of chairman. Maximum of six hours of Special topics credit in any one degree program. Special subject matter industrial engineering. Topics to be announced in *Schedule of Issues*.

0796. Research. Cr. 1-9 (Max. 9).

Prereq: consent of adviser and chairman. Advanced design, investigation or experimental work. An outline approved by the instructor must be presented before registration in this course.

0797. Seminar. Cr. 2.

Prereq: consent of adviser. Current developments in research and practice in the field of industrial engineering and operations research.

0799. Master's Essay Direction. Cr. 3.

Prereq: consent of adviser.

0861. (CE 0861) Transportation Engineering Systems Analysis. Cr. 4.

Prereq: IE 0558. Techniques of systems engineering and operations research applied to the prediction of demand, development and evaluation of alternatives for transportation systems composed of various land, air and marine modes.

0897. Seminar. Cr. 1-4.

Prereq: consent of adviser.

0899. Master's Thesis Research and Direction. Cr. 1-12 (12 required).

Prereq: consent of graduate adviser.

0999. Doctoral Dissertation Research and Direction. Cr. 1-16.

Prereq: consent of chairman of departmental graduate committee. No more than ten credits may be elected before doctoral candidacy is obtained.

Mechanical Engineering (ME)

0114. (ET 0114) Engineering Graphics I. (2,3). Cr. 3.

Theory and application of projection drawing; multiview drawing and sketching; pictorial drawing and sketching; sectional views; the basic techniques of dimensioning; charts and graphs.

0115. (ET 0115) Engineering Graphics II. Cr. 3.

Prereq: ME 0114. Multiview and pictorial drawing of complex objects; advanced dimensioning techniques; standard drafting room practices; drafting standards; interpretation of industrial drawings; majors topics in descriptive geometry; primary and successive auxiliary views, lines and line measurements, planes and plane measurements, intersection of two- and three-dimensional objects and revolution of lines and surfaces.

0220. Thermodynamics I. Cr. 4.

Prereq: MAT 0212. Introduction to the Laws of Thermodynamics and their application to a variety of engineering problems. Behavior of substances in solid, liquid and vapor states. The concept of entropy and its use in open and closed system applications.

0240. Statics. Cr. 4.

Prereq: MAT 0212 and PHY 0217. Fundamental principles of statics with application to structural and mechanical problems. Forces, moments and equilibrium, trusses and frames, distributed forces, friction.

0310. Strength of Materials I. Cr. 4.

Prereq: ME 0240. Review of concepts of stress and strain. Relation of infinitesimal elasticity theory to engineering theories.

Theory of torsion including shear flow theory. Theory of bending, symmetrical beams, unsymmetrical beams, deflections, statically indeterminate structures. Elementary theory of stability, buckling. Consideration of stress concentrations and plastic hinge analysis.

0320. Thermodynamics II. Cr. 4.

Prereq: ME 0220. Entropy and the Second Law. Thermodynamic properties and processes. Applications of thermodynamics to flow systems and cycles. Systems with chemical reactions. An introduction to irreversible thermodynamics. Macroscopic treatment of thermodynamic laws.

0330. Fluid Mechanics I. Cr. 4.

Prereq: ME 0240. Basic concepts and fundamental equations of fluid mechanics. Classification of branches of fluid mechanics. Hydrostatics. Integral forms of general basic equations. Dimensional analysis and similarity. Steady, incompressible fluid motions.

0340. Dynamics I. Cr. 4.

Prereq: ME 0240 and PHY 0217. Theory of particle motion. Dynamics of particle systems and plane rigid bodies. Equations of motion, impulse-momentum principles, conservation forces and work-energy principles.

0341. Vibrations I. Cr. 4.

Prereq: ME 0340. Fundamentals of dynamic principles, energy relation and Rayleigh's principle. Undamped and damped free vibration of one degree of freedom. Forced vibration with harmonic excitation. Systems with two degrees of freedom. Introduction to phase plane analysis.

0348. Elements of Design I. (3,3). Cr. 4.

Prereq: ME 0310. Introduction to design philosophy. Analysis and design of mechanical elements to perform specified functions. Limitations imposed by manufacturing, cost, material properties and statistical considerations. Problem laboratory used for the more complex analysis and design problems and to introduce computer-aided design. Fasteners such as bolts, rivets, keys, and welds; springs, journal bearings, antifriction bearings and shafts.

0349. Elements of Design II. (3,3). Cr. 4.

Prereq: ME 0348. Continuation of Mechanical Engineering 0348. Gears, brakes, clutches and flexible elements such as belts and chain drives. Kinematic analysis and synthesis and dynamics of machinery. Computer-aided design used.

0352. Systems Design and Synthesis I. (3,3). Cr. 4.

Prereq: ME 0348. Prereq. or coreq: ME 0349. A multi-disciplinary approach to the synthesis and analysis of simple physical systems. A critical review of previously designed sub-systems, such as an automobile suspension system, with recommendations for design improvements. Oral and written reports by students on outlines for a design project suitable for use in Mechanical Engineering 0450.

0392. Fundamentals of Engineering Experimentation. (2,2). Cr. 3.

Prereq: junior standing. The use of experiment and testing in engineering practice and research. Scaling and similitude. Planning of experiments. Characteristics and dynamics of common measuring instrumentation. Generalized system approach to instrumentation; impedance matching. Statistical analysis of data. Consistency checks and data redundancy.

0393. Experimental Problems in Mechanical Engineering. (2,4). Cr. 4.

Prereq: ME 0392. Experiments on mechanical engineering systems, chosen from several possibilities based on existing experimental facilities and faculty-student interests.

0395. Special Topics in Mechanical Engineering. Cr. 4.

Prereq: consent of chairman. Special subject matter in engineering. Topics to be announced in *Schedule of Classes*.

0410. Strength of Materials II. Cr. 4.

Prereq: ME 0310. Basic equations of classical infinitesimal elasticity. Plane stress, generalized plane stress, and plane strain problems for simply and multiply connected regions. Stress function and strain energy methods. St. Venant theory of torsion and bending. Minimum weight design. Emphasis on solving engineering problems.

0420. Heat Transfer. Cr. 4.

Prereq: ME 0220. Fundamental concepts and the basic modes of heat transfer. The general equation of heat conduction. Steady state heat conduction in one and more dimensions. Transient heat conduction. Heat transfer by radiation, Kirchoff's Law and the black body. Radiation between diffuse surfaces. Radiation from gases, vapors and flames. Introduction to heat convection; the concept of the heat transfer coefficient and Nusselt number.

0430. Fluid Mechanics II. Cr. 4.

Prereq: ME 0330. Incompressible irrotational and rotational flows. Velocity potential, sources, sinks, doublets, circulation, superposition, two-dimensional motion of perfect fluids past bodies. Viscous fluids, some exact solutions, hydrodynamic and thermal boundary layer approximation, Von Karmen integral method. Emphasis on modeling engineering flow problems.

0440. Design and Control of Dynamic Systems. (3,3). Cr. 4.

Prereq: MAT 0519 and ME 0340. Mathematical modeling of linear constant parameter systems. Examples and problems from several engineering fields and some examples from sociological, biological, ecological and economic fields. Open and closed loop systems. Computer aided analysis and design.

0450. Systems Design and Synthesis II. (3,3). Cr. 4.

Prereq: ME 0352. Prereq. or coreq: ME 0440. One or more design projects undertaken by students in which elements and subsystems are synthesized into larger systems. Emphasis on the overall system approach in which decisions are justified by feasibility studies.

0490. Directed Study. Cr. 1-9 (Max. 9).

Prereq: senior standing; consent of chairman. Supervised study and instruction in the field selected by the student. An outline of proposed study must be submitted to and approved by instructor and department chairman prior to election of course.

0492. Engineering Experimental Project. (0,12). Cr. 4.

Prereq: ME 0392. Student-faculty designed project attempts to couple engineering analysis with an experimental configuration. The general task chosen from a list of several possibilities based upon existing experimental facilities. Involve the design of the experiment, assembly and experience in use of instrumentation and definition of experimental goals.

0500. Engineering Analysis I. Cr. 4.

Prereq: MAT 0519 and senior standing. Cognate credit only. Applications of ordinary differential equations. Fourier series, Fourier integrals, Laplace transforms. The method of Frobenius, Bessel functions, Legendre functions. Orthogonality of characteristic functions and boundary value problems.

0501. Engineering Analysis II. Cr. 4.

Prereq: MAT 0519 and senior standing. Basic operations of complex numbers. Analytic functions and the Cauchy-Riemann conditions. Cauchy integral formula. Residue theorem. Conformal mapping and its applications.

0502. Engineering Analysis III. Cr. 4.

Prereq: MAT 0519 and senior standing. Applications of constraints and Lagrange multipliers. Calculus of variations. Characteristics and solutions of partial differential equations of mathematical physics. Method of separation of variables. Applications to problems in engineering.

0503. Approximate Methods of Analysis I. Cr. 4.

Prereq: MAT 0519. Methods of approximate solution of ordinary and partial differential equations of the mechanical engineering sciences; numerical methods. Examples using various grid methods.

0504. Approximate Methods of Analysis II. Cr. 4.

Prereq: MAT 0519. Methods of approximate solution of ordinary and partial differential equations of the mechanical engineering sciences; variational methods. Applied problems using Ritz and Galerkin methods.

0505. Approximate Methods of Analysis III. Cr. 4.

Prereq: ME 0410, ME 0504 or consent of instructor. Use of the finite element method in solving problems in the mechanical engineering sciences; solid and fluid mechanics.

0506. Perturbation Methods in Engineering. Cr. 4.

Prereq: MAT 0519. Study the use of asymptotic and perturbation methods in solving engineering problems, in particular in the solid and fluid mechanics areas.

0508. Dynamics of Problem Solving (IE 0508). Cr. 4.

Prereq: MAT 0519. Introduction to problem solving techniques, probability and information theory, modeling in engineering, physical and social sciences, decision-making, optimization and dynamic system models.

0510. Introduction to Plates and Shells. Cr. 4.

Prereq: ME 0410. Symmetrical and unsymmetrical bending of circular plates of uniform and non-uniform thickness. Bending of rectangular plates with various boundary conditions. Membrane theory of cylindrical and axially symmetric shells. Application to pressure vessels.

0511. Advanced Strength of Materials. Cr. 4.

Prereq: ME 0410. Study of advanced strength of materials and classical elasticity. Elasticity equations. Plane problems. Rotating disks. Torsion. Energy methods. Topics in buckling. Dynamic problems.

0514. Applied Plasticity. Cr. 4.

Prereq: ME 0310. Introduction to the theory of plasticity. Yield criteria, plastic stress-strain laws. Applications to trusses, beams, frames, and plates.

0517. Applied Polymer Rheology. Cr. 4.

Prereq: ME 0310 and ME 0330. Flow properties of polymer solutions; methods of measuring fundamental rheological parameters using viscometric devices, the prediction of material properties from theoretical principles, and correlations between theoretical and experimental results.

0520. Thermodynamics and Combustion Phenomena. Cr. 4.

Prereq: ME 0320 or equiv. Laws of thermodynamics using the statistical approach. Thermodynamic analysis of multiphase systems, non-reactive mixtures, and reactive mixtures. Hydrocarbon characteristics. Combustible mixture formation. Explosion phenomena. Flame structure and propagation. Statistics.

Statistical Mechanics and Kinetic Theory. Cr. 4.

Prereq: ME 0320. Introduction to the statistical mechanical ap-

proach to thermodynamics and transport phenomena. Review of concepts of probability and particle mechanics. Elementary kinetic theory. Molecular explanation of thermodynamics. Calculation of thermodynamic properties for ideal gases. Quantum statistics. Simple theories for properties of dense gases, liquids, and solids. Chemical equilibria.

0523. Plasma Dynamics. Cr. 4.

Prereq: ME 0340. Properties of natural and laboratory produced plasmas, orbits of charged particles in fields, collisions. Coulomb scattering and diffusion of particles, collective phenomena in cold and hot plasmas, wave motion and stability, derivation of M.H.D. equations, applications to power generation, space propulsion and astronomy.

0526. Heat and Mass Transfer. Cr. 4.

Prereq: ME 0420. Heat transfer in laminar flow, free and forced convection in various geometries. Turbulent flow and experimental results. Heat transfer with boiling. Condensation, heat transfer in high velocity flows and rarified gases.

0527. Solar Energy Heat Transfer Processes. Cr. 4.

Prereq: ME 0420 or equiv. Solar radiation: measurements data, estimation, selected topics in heat transfer, radiation characteristics of opaque material and partially transparent material, flat plate collectors analysis, energy storage, solar water heating, solar heating and cooling.

0528. Heat Conduction. Cr. 4.

Prereq: MAT 0519, ME 0420. Heat transfer by conduction in the steady and unsteady states, including heat sources. Analytical, numerical, graphical, and analog methods of solution for steady and fluctuating boundary conditions.

0530. Hydrodynamics. Cr. 4.

Prereq: ME 0330. Applications of the theory of incompressible, inviscid fluids. Elements of Potential Theory. Flow past slender bodies, approximation techniques. Impulsive motions, principle of virtual mass. Water waves, general flows with free boundaries, jets.

0533. Compressible Flow. Cr. 4.

Prereq: ME 0330. One-dimensional isentropic flow. Normal and oblique shock waves. Generalized duct flow. Two-dimensional steady isentropic flow, method of characteristics. Unsteady one-dimensional flow.

0535. Atmospheric Fluid Dynamics. Cr. 4.

Prereq: ME 0330 or equiv. or consent of instructor. Theory of fluid dynamics, heat transfer and associated phenomena that pertain to the motion of air in the atmosphere and the weather.

0536. Introduction to Boundary Layers. Cr. 4.

Prereq: ME 0330. Application of Prandtl approximations to Navier-Stokes and energy equations. Laminar flow and turbulent boundary layers. Similarity transformations. Flat plate. Stagnation point. Boundary layer separation. Jets and wakes. Von Karman integral methods. Solution of selected problems.

0537. Vehicle Aerodynamics. Cr. 4.

Prereq: ME 0430 or consent of instructor. Introduction to the aerodynamics of bluff bodies in two and three dimensions, simulation of vehicles, separation patterns and ground proximity effects, drag and lift, numerical solutions of flow fields, comparison to wind tunnel data.

0539. Lubrication. Cr. 4.

Prereq: ME 0348 and 0430. Comprehensive studies of the theory and principles of lubrication and their application to major types of bearings and machining operations.

0540. Dynamics II. Cr. 4.

Prereq: ME 0340. Kinematics and dynamics of rigid bodies in space. General theory of rotating coordinate frames; relative motion equations. Euler angles, angular momentum, kinetic energy, work-energy principles. Introduction to gyroscopes.

0541. Vibrations II. Cr. 4.

Prereq: ME 0341. Multi-degree of freedom systems and numerical methods. Systems with impulsive and arbitrary excitations. Introduction to vibration of continuous systems and stability criteria for linear systems.

0542. Introduction to Random Oscillations. Cr. 4.

Prereq: ME 0541. Objectives of random vibration analysis, vibration records, frequency response and the mean of input and response functions. Spectral density and filters. Probability distribution and probability density.

0543. Dynamics of Machinery. Cr. 4.

Prereq: ME 0341. Dynamic-force analysis of plane-motion and space mechanisms. Balancing; cams; analysis, reduction and isolation of vibration.

0545. Vehicle Dynamics I. Cr. 4.

Prereq: ME 0450. Analysis of the ride and handling characteristics of vehicles using linear models. Modeling techniques for tires and suspension systems.

0546. Effects of Acceleration on Biological Systems. Cr. 4.

Prereq: ME 0340 or consent of instructor. Study of steady state, impact, and vibration of biological systems. Mechanical and physiological responses.

0547. Automotive Collision Simulation. Cr. 4.

Prereq: ME 0340 or equiv. Collision simulators and their characteristics. Methods of propulsion, instrumentation, high-speed photography and analysis of results. Motor vehicle safety standards. Simulated collision and analysis.

0550. Machine Design I. (3,3). Cr. 4.

Prereq: ME 0348. Design of elementary systems including analyzing and synthesizing such factors and components as shafts, keys and couplings, bearings, gears, and flexible power elements. Short design projects are included in the above.

0551. Machine Design II (I E 0551). Cr. 4.

Prereq: ME 0550. Feasibility, decision theory, optimization, legal problems (liability), reliability, styling, marketing, distribution, and cost as they are related to design.

0552. Machine Design III. (2,6). Cr. 5.

Prereq: ME 0551. Definite design problems which require analysis, the synthesizing of data and basic principles into complete projects and justification in terms of function, production cost, and saleability. Development of creative thinking and training in use and selection of existing technical information.

Mechanism Design. Cr. 4.

Prereq: ME 0348. Design of mechanisms to perform special functions: computer mechanisms, indexing mechanisms, non-circular gears, special cams, linkages.

Fundamentals of Vehicle Design. Cr. 4.

Prereq: senior standing. Behavior of the vehicle and its various subsystems. Outline of the parameters which control design of the vehicle and its various subsystems.

of Engineering

0555. Controls I. (3,3). Cr. 4.

Prereq: ME 0440 or equiv. Theory and design of electromechanical controls. Control of pressure, flow, speed, position, torque, and power. Methods of setting up and solving system differential equations.

0556. Controls II. (3,3). Cr. 4.

Prereq: ME 0555. Sinusoidal analysis and stability techniques. An introduction to non-linear systems.

0557. System Dynamics. (3,2). Cr. 4.

Prereq: ME 0440 or equiv. Continuation of Mechanical Engineering 0440.

0558. Engineering Physiology (ECE 0558) (I E 0553). Cr. 3.

Prereq: senior standing or consent of instructor. The basic principles of human physiology from the engineering viewpoint. Bodily functions, their regulation and control discussed in quantitative terms and illustrated by simple mathematical models when feasible.

0559. Bioinstrumentation (ECE 0559) (I E 0559). Cr. 3.

Prereq: ECE 0301 and ME 0558. Engineering principles of physiological measurements. Signal conditioning equipment, amplifiers, recorders and transducers. Recent advances.

0560. Mechanical Properties of Engineering Materials. Cr. 4.

Prereq: ME 0310 and MET 0130 or equiv. Relationship of molecular structure to elastic and plastic deformation; dislocation mechanics. Viscoelasticity, creep and fatigue. Brittle fracture; Griffith Theory. Dynamic behavior and experiments.

0567. (ECE 0567) Bioelectronics I. (2,3). Cr. 3.

Prereq: ME 0559 or ECE 0559 or consent of instructor. Investigation of an approved research project in the area of bioelectronics.

0570. Introduction to Continuum Mechanics I. Cr. 4.

Prereq: MAT 0521. Cartesian tensor analysis, integral theorems, invariants. Kinematics: material derivative, transport theorem, streamlines. Deformation, deformation rate and spin tensors. Vorticity, circulation and associated theorems. Balance equations, momentum and energy transfer. Constitutive equation postulates.

0571. Introduction to Continuum Mechanics II. Cr. 4.

Prereq: ME 0570. Constitutive equations for nonlinear elastic solids and Stokesian fluids: invariance requirements, objectively equivalent motions, polynomial approximations. Continuum thermodynamics: energy, entropy, heat flux. Clausius-Duhem inequality, equation of state, heat conduction equations, consideration of barotropic perfect fluids and linear elasticity.

0572. (ECE 0572) Electrophysiology (CHE 0572). Cr. 3.

Prereq: ECE 0381, ME 0558 or ECE 0558 or consent of instructor. Mathematical techniques to describe the electrical behavior of nerve and muscle. Natural electrical sources and the energy from these sources that can propagate to various parts of the system.

0580. Combustion Engines. Cr. 4.

Prereq: ME 0320 or equiv. Thermodynamics and cycle analysis of spark ignition, compression ignition, and gas turbine engines. Combustion processes in actual systems, performance characteristics, combustion abnormalities. Analysis of intake, fuel and exhaust systems.

0581. Combustion and Emissions. Cr. 4.

Prereq: ME 0580; for chemical engineering students: senior standing or equiv. Fundamentals of emission formation in combustion.

systems, wall quenching and imperfect combustion, unburned hydrocarbons, carbon monoxide, aldehydes, nitrogen oxides, species stratification in the combustion chamber, particulates. Effect of design parameters and engine operating variables on emission formation. Emission controls and instrumentation.

0582. Gas Turbine Power. Cr. 4.

Prereq: ME 0320 and 0420. The thermodynamic analysis of the gas turbine processes. Study of plant components. Applications to aircraft propulsion, stationary, mobile and marine power.

0583. Thermal Environmental Engineering. Cr. 4.

Prereq: ME 0320 and 0420. Concepts and techniques in refrigeration and air conditioning.

0584. Air Pollution Control. Cr. 4.

Prereq: ME 0320. A comprehensive study of the sources of air pollution, methods for evaluating the nature and magnitude of contamination, and the methods and processes for the prevention and abatement of air pollution.

0586. (CHE 0586) Elements of Nuclear Engineering (MET 0586). Cr. 4.

Prereq: senior standing. An introduction to nuclear engineering. The relevant aspects of nuclear physics, radioactivity, shielding, heat transfer and fluid flow are reviewed and applied to the design of large thermal power reactors. Reactivity calculations are developed in terms of two-group neutron flux theory. Biological hazards, waste disposal and recent developments such as fast breeders are discussed.

0590. Advanced Laboratory Topics. (2,2). Cr. 3.

Prereq: ME 0392. Concepts of statistical experimental design, randomization, blocking, confounding, factorial and fractional factorial designs. Experimental designs using response surfaces. Regression analysis-linear and multiple regression. Instrumentation design of instruments for transient physical phenomena.

0592. Photomechanics of Solids. (3,3). Cr. 4.

Prereq: ME 0310. Theory and application of modern and classical optical methods to measure deformations and stresses in two- and three-dimensional solids. Emphasis on classical photoelasticity; including coatings, stress separation methods, three-dimensional analysis and compensation.

0593. Strain Gage and Mechanical Measurement of Deformation. (2,4). Cr. 4.

Prereq: ME 0310. Principles of the electric resistance strain gage in the measurement of strain. Piezoresistive sensors, particularly the coupling of the variables of strain, temperature and lattice orientation. Strain gage rosette analysis, brittle coatings, considerations of electrical conditioning, calibration and telemetry. Use of strain gages and strain gage systems (including transducers) in research and industrial applications.

0594. Aerospace Propulsion. Cr. 4.

Prereq: ME 0320. Review of mechanics and thermodynamics, aerodynamics of aircraft jet engines, performance of rocket vehicles; propellants and combustion; nuclear rockets and electrical jet propulsion systems.

Special Topics in Mechanical Engineering I. Cr. 1-4.

Prereq: consent of chairman. Maximum of six credits in special topics may be elected in any one degree program. Topics to be listed in *Schedule of Classes*.

Combustion Engines Laboratory. (1,3). Cr. 4.

Prereq: ME 0320, 0330. Laboratory experience in determining

emission, power, and economy characteristics of internal combustion engines as influenced by operating and design variables.

0654. (ECE 0654) Bioelectronics II. (2,3). Cr. 3.

Prereq: ME 0567 or ECE 0567. Continuation of Mechanical Engineering 0567.

0658. Mathematical Modeling in Bioengineering (ECE 0658) (IE 0658). Cr. 3.

Prereq: ME 0558, 0341 or ECE 0431. Mathematical models that simulate physiological or anatomical function. Models of the nervous and vascular systems, models for impact acceleration, and current topics.

0660. (CHE 0660) Fusion Engineering (ECE 0619). Cr. 3.

Prereq: consent of instructor. Introduction to physical processes involved in nuclear fusion. Magnetically confined plasmas and laser induced fusion. Up-to-date status and economics.

Enrollment in the following courses is limited to graduate students.

0703. Finite Element Analysis I. Cr. 4.

Prereq: ME 0503 or consent of instructor. Study of advanced concepts in finite element analysis as applied to problems in solid mechanics, fluid mechanics and heat transfer.

0704. Finite Element Analysis II. Cr. 4.

Prereq: ME 0703 or consent of instructor. Continuation of Mechanical Engineering 0703.

0710. Theory of Plates. Cr. 4.

Prereq: ME 0410 or consent of instructor. Symmetrical and unsymmetrical bending of circular plates. Rectangular plates with various boundary conditions. Plates on elastic foundations. Strain energy and finite difference methods. Circular and rectangular plates of variable thickness. Large-deflection theory.

0711. Theory of Elasticity I. Cr. 4.

Prereq: ME 0410. Boundary value problems of classical infinitesimal elasticity. St. Venant bending and torsion. Plane stress, generalized plane stress, plane strain, for simply and multiply connected sections. Kolosov complex potentials.

0713. Elastic Stability I. Cr. 4.

Prereq: ME 0540 or consent of instructor. Static and dynamic methods for the stability of discrete systems; linear systems with circulatory, dissipative and gyroscopic forces. Buckling of elastic rods with various end conditions under dynamic loading.

0714. Theory of Plasticity I. Cr. 4.

Prereq: ME 0571 or consent of instructor. Introduction to the basic concepts of plasticity. Yield criteria of Tresca and Von Mises. Stress-strain relations for plastic deformation: Levy-Mises, Hencky and Prandtl-Ruess. Solution of elasto-plastic problems in torsion and bending, rotating cylinders and disks, thick-walled hollow spheres and cylinders and two-dimensional plastic flow problems.

0715. Thermal Stress Analysis I. Cr. 4.

Prereq: ME 0570. Field equations, kinematics, constitutive equations for three-dimensional linear theories of thermoelasticity and thermoviscoelasticity. Boundary value problems, solution techniques, applications of thermoelasticity.

0717. Viscoelasticity I. Cr. 4.

Prereq: ME 0570. Discussion of material behavior in applications involving polymers, plastics and structural materials at elevated

temperatures; stress relaxation, creep, retardation times. The field equations, kinematics, constitutive equations for uniaxial loading—finite models, hereditary laws. Harmonic oscillations, complex modulus and compliance. Three-dimensional linear theory; properly invariant constitutive laws in terms of Stieltjes convolutions.

0721. States of Matter. Cr. 4

Prereq: ME 0522. Methods of calculation for properties and phenomena in liquids, including thermodynamic and statistical mechanical approaches as well as use of models. Thermodynamic, electromagnetic and transport properties of one-component liquids, suspensions, and multiphase systems.

0722. Statistical Mechanical Methods in Engineering. Cr. 4.

Prereq: ME 0520 or 0522. Methods of equilibrium and non-equilibrium statistical mechanics useful for the microscopic approach to engineering problems.

0723. Advanced Kinetic Theory of Plasmas. Cr. 4.

Prereq: ME 0522. Boltzmann and Fokker-Planck kinetic equations, collision cross sections. Theory of electrolytic solutions and equilibrium plasma. Debye screening, transport coefficients in neutral and ionized gases, Einstein and Onsager relations, Kramers-Kronig relations. Non-equilibrium phenomena electrical breakdown in neutral and partially ionized plasmas.

0724. Electromagnetic Propagation and Scattering in Plasmas. Cr. 4.

Prereq: consent of instructor. Maxwell's equations and Lorentz Theory of electrons. Propagation through homogeneous plasmas. Scattering from simple geometries. Propagation and scattering in random media. Application to turbulent atmospheres. Propagation in magnetized plasmas. The general scattering problem, S matrix. Eikonal solution and geometric optics. WKB approximation. First and second Born approximation. Distorted wave approximation. Introduction to nonlinear propagation. Electron distribution functions. Breakdown phenomena.

0725. Radiative Heat Transfer. Cr. 4.

Prereq: ME 0420. The fundamental laws of energy transfer by radiation. Statistical mechanics. Derivation of the black-body function. Radiative properties of real, specular, and diffuse surfaces. Radiative transfer through transparent media. The equation transfer for absorbing and emitting media. Isothermal, variable temperature and radiative equilibrium conditions. Coupling of radiation, conduction and convection.

Convective Heat Transfer. Cr. 4.

ME 0420 and 0430. General equations of conservation momentum and energy. Prandtl's approximation and the boundary layer equations. Solutions for velocity and temperature profiles for external flows with and without pressure gradients. Solutions for ducted flows. Approximate integral methods for velocity and energy. High speed flow. Adiabatic wall temperature. Introduction to compressible boundary layers and turbulent

Mathematical Methods in Diffusion and Heat Conduction.

Steady state heat conduction in two and three dimensions. Solutions of Laplace and Poisson equations and the theory of diffusion by several approaches: potential functions, separation of variables, Green's functions, integral methods, Laplace transform and numerical methods. Transient heat conduction: distribution function, equation of transport, scattering, numerical methods. Diffusion

0729. Advanced Combustion and Emissions I. Cr. 4.

Prereq: ME 0520 or consent of instructor. Flame propagation theories, structure of premixed hydrocarbon flames, mathematical formulations for flame propagation and emission formation in homogeneous mixtures in engines.

0730. Theory of Incompressible Flow I. Cr. 4.

Prereq: ME 0430. Review of general equations for barotropic perfect fluids and of complex variable theory. Introduction to study of two-dimensional motion using conformal mapping—complex potential, velocity, stagnation points, speed; streamlines; circle theorem; flow past circular cylinder, airfoil theory.

0733. Compressible Flow I. Cr. 4.

Prereq: ME 0430. Restriction of general fluid conservation equations to non-viscous, adiabatic flow; one-dimensional isentropic flow; generalized one-dimensional flow; shock waves; two- and three-dimensional steady, subsonic flow with associated techniques.

0734. Introduction to Magnetohydrodynamics. Cr. 4.

Prereq: ME 0523 or consent of instructor. Concepts and description of plasma; interaction of fluids and electromagnetic fields; Ohm's Law for conducting fluids and gases, magnetohydrodynamic approximation. Alfvén waves, forward facing waves, magnetohydrodynamic flows over thin bodies in magnetic fields; boundary layers in magnetohydrodynamics.

0736. Viscous Flow and Boundary Layer Theory I. Cr. 4.

Prereq: ME 0570 or consent of instructor. Theory of similar solutions, Goldstein theorem, Falkner-Skan and Mangler equations, existence and uniqueness. Qualitative properties of boundary layer equations, Von Mises transformation, maximum principle for parabolic equations. Three-dimensional boundary layers.

0738. Hydrodynamic Stability and Transition to Turbulence I. Cr. 4.

Prereq: ME 0530. Equilibrium flow regimes; difference equations of mass, motion and energy; stability parameters; inviscid instability of shear flow; centrifugal flows and thermo-convective systems.

0740. Advanced Dynamics I. Cr. 4.

Prereq: ME 0540. Generalized coordinates, classification of dynamical systems with finite degrees of freedom. Lagrange's equations for rheonomic, non-holonomic systems. Ignorable coordinates, Jacobi's integral for conservative and natural systems. Applications to holonomic and non-holonomic systems. Dissipative systems, Hamilton's equations.

0741. Vibrations of Continuous Systems. Cr. 4.

Prereq: ME 0541. Introduction to integral transforms. Longitudinal, torsional, and transverse vibrations of rods: free and forced periodic and aperiodic vibrations. Transverse vibrations of continuous beams and frames. Transverse vibrations of thin plates. Approximate methods: iterative and difference methods, transfer matrices; Rayleigh-Ritz and Galerkin method.

0745. Advanced Methods of Vehicle Systems Analysis. Cr. 4.

Prereq: ME 0540 or equiv. Underlying dynamic principles of vehicular motion for aircraft, ships, rail-guided vehicles and road vehicles on wheels and tracks.

0748. Nonlinear Vibrations I. Cr. 4.

Prereq: ME 0541. Approximate solution methods of nonlinear autonomous equations and heteronomous equations. Equations of state of several typical nonlinear mechanical systems. Expected solutions are considered relative to their stable (or unstable) behavior. Notion of stability in the sense of Poincaré and Liapunov.

0750. Advanced Mechanisms. Cr. 4.

Prereq: ME 0550, MAT 0280 or equiv. Analysis and synthesis of space mechanisms, such as design of space mechanisms to follow a prescribed space curve.

0751. Optimum Design. Cr. 4.

Prereq: ME 0450 and MAT 0519. Methods of optimum design for mechanical elements and systems. Techniques for minimizing undesirable effects or maximizing desirable effects in a given design.

0755. Controls III. (3,3). Cr. 4.

Prereq: ME 0556. Nonlinear controls. Advanced study of control systems components.

0759. Topics in Biomedical Engineering (ECE 0759). Cr. 3.

Prereq: consent of instructor. Seminar covering current research problems in biomedical engineering. Weekly presentations made by students, faculty and outside speakers. Members of the faculty attend and take responsibility for leading discussions.

0770. Advanced Continuum Mechanics. Cr. 4.

Prereq: ME 0571. Advanced topics in continuum mechanics. General curvilinear tensors; kinematics of fluids, solids, media with microstructure, non-simple media; constitutive equations for the above media; chemically reacting mixtures; selected solutions.

0771. Theory of Rods. Cr. 4.

Prereq: ME 0571 and 0770 or consent of instructor. Kinematics of a directed curve, strain measures and geometric interpretation, rate measures, anholonomic components. Energy balance and invariance under rigid body motions, balance of mass and momentum. Development of a complete dynamical theory of elastic directed curves. The special case of Cosserat curves. Reduction to the theory of Green and Laws and of Hay.

0772. Foundations of the Theory of Elastic Shells. Cr. 4.

Prereq: ME 0711 or consent of instructor. Geometry of a surface; kinematics of deformation and strain measures. The Kirchhoff Hypothesis. Derivation of stress measures and of the stress equations of equilibrium. Constitutive equations. General theorems.

0790. Directed Study. Cr. 1-9 (Max. 9).

Prereq: consent of adviser, chairman and engineering graduate officer. Student selects some field of engineering for advanced study and instruction.

0792. Advanced Methods of Experimental Stress Analysis. (1,3). Cr. 2.

Prereq: ME 0593. Detailed study; investigation of residual stress measurements by x-ray diffraction and other methods. Selection and limitations of methods, interpretation of results. Thermal stress and three-dimensional analysis.

0795. Special Topics in Mechanical Engineering II. Cr. 1-4.

Prereq: consent of chairman. Maximum of six hours of Special Topics credit in any one degree program. A consideration of special subject matter in engineering. Topics to be announced in *Schedule of Classes*.

0796. Research. Cr. 1-9 (Max. 9).

Prereq: consent of chairman and adviser. A combined experimental and analytic study of a problem in a special field of engineering.

811. Theory of Elasticity II. Cr. 4.

Prereq: ME 0570 or consent of instructor. Kinematics of deformation; Green, Cauchy and St. Venant strain tensors and geo-

metric interpretation; strain ellipsoids, general rotation tensor, mean rotation. Compatibility. Rate measures; Rivlin Ericksen tensors. Balance principles: mass, momentum, energy; entropy production inequality. Constitutive relations; Cauchy and Green elasticity, principles of objectivity and of material anisotropy. Thermodynamics of deformation and development of nonlinear non-isothermal theory of hyperelasticity.

0812. Theory of Elasticity III. Cr. 4.

Prereq: ME 0570 or consent of instructor. Classical linear elastostatics: theorems on existence and uniqueness; inequalities; stress functions of Finzi, Galerkin and Papkovitch-Neuber and reduction to three harmonic functions; fundamental solutions of Kelvin, Boussinesq and Mindlin; integral representations of solutions; St. Venant's principle; three dimensional stress concentrations, the contact problem. Classical linear elastodynamics: Poisson and Lamé solutions, Sternberg's theorem; wave propagation; Love, Rayleigh and Lamb. Finite deformation, the method of Rivlin.

0813. Elastic Stability II. Cr. 4.

Prereq: ME 0713. Classical potential energy method for the stability of equilibrium configurations of elastic systems; reduction to a variational problem, Rayleigh-Ritz method. Dynamical stability theory for continuous media.

0814. Theory of Plasticity II. Cr. 4.

Prereq: ME 0714. Theory of work-hardening materials: models of hardening behavior; plastic dissipation and material stability; extremum principles. Anisotropic plasticity. Plastic wave propagation. Viscoplasticity.

0815. Thermal Stress Analysis II. Cr. 4.

Prereq: ME 0715. Boundary value problems, stress analysis, correspondence principle, solution techniques in thermoviscoelasticity. Materials with temperature dependent parameters, effects of material anisotropy and substructure.

0816. Theory of Shells. Cr. 4.

Prereq: ME 0772 or consent of instructor. Membrane theory of shells of revolution and cylindrical shells of arbitrary shape. Applications to pressure vessels and domes. General bending theory of cylindrical shells and applications. Symmetrical deformation of shells of revolution with detailed treatment of spherical, conical and toroidal shells. Method of asymptotic integration.

0817. Viscoelasticity II. Cr. 4.

Prereq: ME 0717 or consent of instructor. Integral constitutive equations, discontinuous stress and strain histories. Alternative formulations of boundary-value problems. Properties of viscoelastic states; initial response, correspondence principle. Integral theorems (work, energy, reciprocal relations), uniqueness, solution by stress functions. Dynamic loading, wave propagation.

0825. Advanced Radiative Heat Transfer in Gases. Cr. 4.

Prereq: ME 0522 and 0725. The equation of transfer for absorbing, emitting and scattering media. Optically thick and optically thin approximation. Local thermodynamic equilibrium. Coupled effects of conduction and convection. Homogeneous atmospheres and approximation techniques for inhomogeneous atmospheres. Non-equilibrium effects.

0826. Turbulent Flow and Heat Transfer. Cr. 4.

Prereq: ME 0726 or consent of instructor. The fundamentals of heat transfer in turbulent flow. Development of the heat and momentum transfer equations in turbulent flow. The concept of eddy diffusivity. Analysis of heat transfer in turbulent flow using the Momentum-Heat Transfer Analogy. Phenomenological theories of turbulence. Methods of Prandtl, Von Karman, Martinelli, Lyon, Deissler; other recent developments in turbulent flow heat transfer.

0827. Hypersonic Gas Dynamics. Cr. 4.

Prereq: M E 0533. Review of the concepts of gas dynamics and shock waves. Slender body theory. One-dimensional unsteady flows. Similarity solutions. Explosions and implosions. Blast waves. Newtonian theory. Approximate techniques for blunt body flows and for supersonic flows. Viscous effects. Boundary layer-entropy layer interactions. Viscous and merged layer approximations. Rarefied flow. Slip and free molecular flow.

0828. High Temperature Gas Dynamics. Cr. 4.

Prereq: M E 0726 or consent of instructor. Thermodynamic and transport properties of high temperature gases. Flows with finite chemical and internal relaxation rates. Boundary layer equations including chemical reactions, radiative transfer and magnetogas-dynamic effects. Heat and mass transfer in laminar and turbulent high temperature boundary layers. Stagnation point heat transfer. Ablation chemistry. Laminar and turbulent wakes. Base flows.

0829. Advanced Combustion and Emissions II. Cr. 4.

Prereq: M E 0729 or consent of instructor. Heterogeneous combustion theories, diffusion flames, droplet combustion, spray combustion, mechanisms of emission formation in compression ignition, stratified charge and gas turbine engines.

0830. Theory of Incompressible Flow II. Cr. 4.

Prereq: M E 0730. Applications of the theory of incompressible fluid flow using conformal mapping techniques. Development and use of important transformations and theorems, such as those of Kutta Joukowski and Schwarz and Christoffel. Three-dimensional flow, slender body theory.

0833. Compressible Flow II. Cr. 4.

Prereq: M E 0733 or consent of instructor. Two- and three-dimensional supersonic fluid using the method of characteristics; linearized potential equations, cones in supersonic flow; acoustic approximation; bodies of revolution using sources and sinks for subsonic and supersonic flow.

0836. Viscous Flow and Boundary Layer Theory II. Cr. 4.

Prereq: M E 0736 or consent of instructor. The equations of motion for viscous compressible flow, similarity assumptions, solution techniques; subsonic, supersonic and hypersonic flow with viscous effects including effects of dissociation, heat and mass transfer and chemical reactions.

0838. Hydrodynamic Stability and Transition to Turbulence II. Cr. 4.

Prereq: M E 0738. Stability of viscous flows; linear and nonlinear theories; numerical and analytical solutions to Eigenvalue problems; Eigenvalue estimates and qualitative descriptions of the stability limit surface; experimental investigations.

0840. Advanced Dynamics II. Cr. 4.

Prereq: M E 0740. Variational principles for dynamical systems. Contact transformations, Poisson brackets, Hamilton's principal function, Hamilton-Jacobi equation, Jacobi's integral, separable systems. General dynamical theory.

0848. Nonlinear Vibrations II. Cr. 4.

Prereq: M E 0748. Poincare's canonical transformation of equations; Van der Pol's method of solution; Duffing's equation of criteria of stability by means of Mathieu and Hill's equation. Introduction to perturbation methods applied to nonlinear systems.

0895. Special Topics in Mechanical Engineering III. Cr. 1-4.

Prereq: consent of chairman. Maximum of six hours of Special Topics credit in any one degree program. A consideration of special subject matter in engineering. Topics to be announced in *Schedule of Classes*.

0899. Master's Thesis Research and Direction. Cr. 1-12 (12 required).

Prereq: consent of adviser.

0997. Doctoral Seminar. Cr. 2-6 (Max. 6).

Prereq: consent of doctoral adviser; coreq: M E 0999.

0999. Doctoral Dissertation Research and Direction. Credits to be arranged.

Prereq: consent of doctoral adviser. No more than ten hours may be elected before doctoral candidacy is obtained.

Metallurgical Engineering (MET)

Required Undergraduate Courses

A grade of C is the minimum acceptable for these required courses. Continuation in sequence courses after receipt of D may be authorized only by the department chairman.

0130. Science of Engineering Materials. Cr. 4.

Prereq: CHM 0107. Introduction to the behavior and properties of metallic, ceramic, polymeric and composite materials. The relationship between the internal arrangement of atoms in materials and their observed mechanical, thermal, electrical and chemical behavior.

0260. Structure and Properties of Metals. Cr. 4.

Prereq: MET 0130; PHY 0218. An overview of metallurgical engineering with emphasis on physical metallurgy: structure and properties of metallic materials, phase diagrams, microstructure, deformation, recrystallization, transformations and surface treatment.

0262. Structure and Properties of Metals Laboratory. (0,6). Cr. 2.

Prereq. or coreq: MET 0260. Experimental study of the phase relationship and properties of metals and alloys as determined by metallographic techniques.

0300. X-Ray Metallurgy. (3,3). Cr. 4.

Prereq: MET 0260. Introduction to X-ray crystallography, diffraction theory and its applications, the stereographic projections, pole figures, twinning, crystal orientation and line broadening. Introduction to reciprocal lattice in solution of crystallographic problems.

0330. Physical Metallurgy I. Cr. 4.

Prereq: MET 0260, 0358. Phase equilibria, diffusion, and kinetics, and their application to the physical metallurgy of iron and steel. Phase equilibria in multicomponent systems, thermodynamics of alloys, diffusion in substitutional and interstitial alloys, nucleation and growth kinetics. Phase transformations in iron and steel, the hardening of steel.

0332. Physical Metallurgy Laboratory I. (1,3). Cr. 2.

Prereq. or coreq: MET 0330. Laboratory investigations of topics covered in Metallurgical Engineering 0330 and related areas.

0350. Mechanical Behavior of Metals. Cr. 4.

Prereq: MET 0260. Strength, plastic deformation and failure of crystalline materials from the metallurgical point of view. Dislocation behavior and the mechanisms of yielding, strengthening, fracture, fatigue and creep of engineering materials.

0358. (CHE 0358) Chemical Equilibria. Cr. 4.

Prereq: CHE 0220, 0280. Qualitative and quantitative treatment of homogeneous and heterogeneous phase and chemical equilibria. Use of chemical activities and activity coefficients relating ideal to actual systems. Use of reference states and excess properties of the prediction of equilibrium diagrams and the determination of feasibility of chemical reactions.

0360. Physical Metallurgy II. Cr. 4.

Prereq: MET 0330. Continuation of Metallurgical Engineering 0330. Phase transformations, martensitic transformations, tempering of steel, stainless steels, solidification of single and multi-component systems, cast iron spinodal decomposition and age hardening alloys, annealing.

0362. Physical Metallurgy Laboratory II. (1,3). Cr. 2.

Prereq. or coreq: MET 0350 and 0360. Laboratory investigations of topics covered in Metallurgical Engineering 0350 and 0360 and related areas.

0426. Research: Organization. (1,3). Cr. 1.

Prereq: consent of chairman. Organization of a research project: literature survey, equipment specification and presentation of a written proposal for the laboratory investigation.

0430. Principles of Fabrication. Cr. 4.

Prereq: MET 0260. Analysis of forming and joining from the metallurgical point of view. Deformation processing, powder metallurgy, brazing and welding. Materials properties and behavior during and after processing.

0450. Materials Selection and Design. (2,2). Cr. 3.

Prereq: MET 0350 and 0360. Application of engineering and science background to the design of equipment and processes. Comprehensive problems dealing with data sources, design principles and economics.

0456. Research: Investigation. (0,12). Cr. 4.

Prereq: MET 0426. Laboratory investigation of an approved research project. Conferences and oral reports.

0460. Principles of Extractive Metallurgy. Cr. 4.

Prereq: MET 0358. Basic scientific and engineering principles involved in the extraction of metals from their ores, with particular emphasis on pyrometallurgical methods used in the manufacture of iron and steel.

0462. Metallurgical Operations Laboratory. (1,3). Cr. 2.

Prereq. or coreq: MET 0460. Laboratory investigations of unit processes involved in extractive metallurgy. Technical reports.

0486. Research: Report. (1,3). Cr. 2.

Prereq: MET 0456. Preparation of a comprehensive written report on the research project completed in Metallurgical Engineering 0456. Final oral report to the department staff.

Undergraduate Elective Courses

0451. Engineering Design. (2,3). Cr. 3.

Prereq: MET 0450. Principles of material selection, process specification and study of material and process failures.

490. Directed Study. Cr. 1-9 (Max. 9).

Prereq: consent of chairman. Student selects some field of metallurgical engineering for advanced study and instruction.

0494. Engineering Experience Report. Cr. 1-5 (Max. 5).

Prereq: consent of department chairman and minimum of eight weeks of approved metallurgical engineering or allied professional work in industry. Preparation of an engineering report covering its nature, scope, and professional responsibilities.

Undergraduate and Graduate Elective Courses

0509. Physical Ceramics (CHE 0509). Cr. 3.

Prereq: MET 0260 or equiv. Physical nature and behavior of vitreous and crystalline non-metals. Crystallography and atomic bonding relationships relative to mechanical, thermal, optic, magnetic and electrical properties. Phase equilibria and transformations, inter-actions in liquid-solid systems, surface properties and diffusional phenomena.

0517. (CHE 0517) Nuclear Engineering Laboratory. (0,6). Cr. 2.

Prereq. or coreq: CHE 0586 or MET 0586. Basic phases of nuclear engineering including the determination of operating characteristics of nuclear reactors, hazards, and safety practices.

0535. (CHE 0535) Polymer Engineering I. Cr. 3.

Prereq. or coreq: MAT 0519. An introductory study and application of fundamental relations between chemical structure and physical properties of high polymers in the related industrial fields of fibers, plastics, resins, and rubbers.

0537. (CHE 0537) Polymer Engineering Laboratory. (0,6). Cr. 2.

Prereq. or coreq: CHE 0535 or MET 0535. Selected laboratory investigations to show the effect of chemical structure and additives on physical properties or polymer aggregates. Correlation of results incorporated into laboratory reports.

0550. Diffusion in Solids. Cr. 4.

Prereq: MET 0360, MAT 0519 or consent of instructor. A comprehensive treatment of mass transport or diffusion in solids including mathematical formalism, atomic mechanisms of diffusion, diffusion kinetics, random walk and correlational effects, etc.

0555. Electrometallurgy. Cr. 3.

Prereq: consent of chairman. An intermediate-level study of the principles of the metallurgical processes of winning metals by electrolysis from fused salt baths and from water-containing baths. Design calculations and engineering reports.

0560. Composite Materials. Cr. 4.

Prereq: MET 0350 or consent of instructor. Principles and applications of high-strength composite materials, with particular emphasis on fibre-reinforced metals and plastics. Design of reinforced materials to replace conventional metals and alloys.

0561. Science of Materials. Cr. 4.

Prereq: PHY 0220 or equiv. Mathematics of physical models representing solid state phenomena. Wave propagation in a lattice, including elastic, light, and electron waves. Includes specific heats, optical phenomena, bond theory, dielectric properties, magnetism and ferro-electricity; classical and quantum statistics, and reciprocal lattice concepts.

0562. Electron Microscopy. (2,4). Cr. 3.

Prereq: MET 0360 or consent of instructor. Theory and practice of electron image formation, sample preparation, diffraction principles, and interpretation of effects.

0563. Cast Ferrous Alloys. (3,3). Cr. 4.

Prereq: MET 0360. Advanced study of the properties of ferrous castings and solidification mechanism.

0565. Metal Surfaces. Cr. 4.

Prereq: MET 0260, 0358. An introduction to the science and technology of surface phenomena, including surface structure, surface energy, surface diffusion, crystal growth, and selected applications of technological importance.

0569. Engineering Aspects of Product Liability. Cr. 3.

Prereq: senior standing. Legal aspect of accident reconstruction on the basis of product liability to illustrate plaintiff and defendant approach to handling engineering subject matters.

0571. Case Studies in Material Science (CHE 0571). Cr. 3.

Prereq: MET 0569. Case studies involving product design, product evaluation, specifications, safety aspects, accident reconstruction.

0585. (CHE 0585) Vacuum Technology. Cr. 3.

Prereq: PHY 0220 or consent of instructor. Vacuum technique, flow of gases through tubes and orifices, operation of pumps and manometers, vacuum materials, vacuum systems.

0586. (CHE 0586) Elements of Nuclear Engineering (M E 0586). Cr. 4.

Prereq: senior standing. An introduction to nuclear engineering. The relevant aspects of nuclear physics, radioactivity, shielding, heat transfer and fluid flow are reviewed and applied to the design of large thermal power reactors. Biological hazards, waste disposal and developments such as fast breeders are discussed.

0595. Special Topics in Metallurgical Engineering I. Cr. 1-4.

Prereq: consent of department chairman. Maximum of twelve credits in Special Topics may be elected in any one degree program. Consideration of special subject matter in metallurgical engineering. Topics to be announced in *Schedule of Classes*.

0603. Failure of Metals. Cr. 3.

Prereq: MET 0486 or consent of chairman. Failure and defects of metals, their origin, causes and elimination.

0611. Materials Aspect of Fabrication. Cr. 4.

Prereq: MET 0430. Advanced detailed analysis of physical phenomena associated with joining and forming. Basic processes such as heat flow, phase transformations, surface reactions, and structural changes associated with welding, brazing, metal forming, and fabrication of composite materials. Emphasis on basic physical and chemical processes associated with fabrication techniques.

0635. (CHE 0635) Polymer Engineering II. Cr. 3.

Prereq: MAT 0519. A detailed analysis of polymer processing. Rheology of polymers, flow in tubes, calendaring, extrusion, injection molding, surface phenomena, and polymer crystallization.

0659. Phase Equilibria. Cr. 3.

Prereq: MET 0360 and senior standing. An analytical study of phase equilibria, with emphasis on phase rule, unary, binary, ternary and multi-component systems. Mechanism of solutions of isothermal and isopleths of systems.

0665. Electrochemical Engineering (CHE 0665). Cr. 3.

Prereq: CHM 0544, CHE 0380 and 0388. Advanced study of the design and operation of industrial electrochemical processes, including the treatment of problems involving simultaneous mass transfer, heat transfer and chemical reaction.

0675. (CHE 0675) Heterogeneous Equilibria. Cr. 3.

Prereq: MET 0358. An intermediate study of the phase diagrams of importance in chemical and metallurgical engineering and of the principles involved in such equilibria.

0685. Corrosion (CHE 0685). Cr. 3.

Prereq: senior standing in engineering. Advanced study of the theories of corrosion of materials; application of these theories in the engineering field. Analysis of industrial problems. Comprehensive engineering reports.

Required Graduate Courses for M.S. and Ph.D. Degrees

Enrollment in the following courses is limited to graduate students. A grade of B is the minimum acceptable for these required courses. Master's degree students following Plan C must elect at least four credits in either MET 0790 or MET 0896.

0710. Phase Transformations I. Cr. 4.

Prereq: MET 0360. An advanced treatment of phase transformations, based on thermodynamics, kinetics and crystallography. Nucleation, basic mechanisms of transformations, and applications of statistical mechanics.

0728. Metallurgical Engineering Thermodynamics: Principles. Cr. 4.

Prereq: MET 0358. An advanced study of the principles of thermodynamics with emphasis on those having ultimate application to reactions in metal producing processes and to the physical equilibria of alloys.

0850. Mechanical Metallurgy. Cr. 4.

Prereq: MET 0350. Analysis of elastic and plastic deformation of single crystals and polycrystalline materials, emphasizing the relations between metallurgical micro-structure and material properties.

Elective Graduate Courses

0705. (CHE 0710) Advanced Engineering Mathematics. Cr. 4.

Prereq: MAT 0519 or equiv. Presentation, evaluation and use of mathematical methods within the framework of engineering problems; including ordinary and partial differential equations, transforms and vector operations.

0717. Physical Metallurgy of Tool Steels. Cr. 3.

Prereq: MET 0360. Manufacture, physical and mechanical testing, principles of heat treating, properties and selection, alloying elements as related to physical metallurgy of tool steels.

0758. Metallurgical Engineering Thermodynamics: Applications. Cr. 4.

Prereq: MET 0728. An advanced study of the applications of thermodynamic principles to metallurgical processes and products.

0760. Phase Transformations II. Cr. 4.

Prereq: MET 0710. A continuation of Metallurgical Engineering 0710, with emphasis on pearlite and martensite reactions.

0790. Directed Study. Cr. 1-9 (Max. 9).

Prereq: consent of adviser, chairman, and engineering graduate officer. Library investigation of an approved project in metallurgical engineering. Independent study, conferences with supervisor and preparation of a comprehensive report.

0795. Special Topics in Metallurgical Engineering II. Cr. 1-4.

Prereq: consent of chairman. Maximum of twelve credits in Special Topics may be elected in any one degree program. A consideration of special subject matter in metallurgical engineering. Topics to be announced in *Schedule of Classes*.

0799. Master's Essay Direction. Cr. 3.

Prereq: consent of adviser.

0809. Advanced Ceramics (CHE 0809). Cr. 4.

Prereq: MET 0509. Advanced and theoretical topics in non-metallic materials. Topics in sintering and pressing, sintering in the presence of a liquid phase, structure of ceramics.

0815. (CHE 0815) Advanced Nuclear Engineering. Cr. 3.

Prereq: MET 0586 or consent of instructor. Design, theory, and operation of reactors from the standpoint of chemical and metallurgical engineering. Design based on requirements for heat removal, burn-up, and materials. Fermi Age Model and Two-Group Theory with modifications for reflectors and control rods. Transient operation and instrumentation.

0821. Diffraction Theory in Materials Science. (2,3). Cr. 3.

Prereq: MET 0300 and 0360. Advanced diffraction methods in materials science. Principles generally applicable to both x-ray and electron diffraction.

0825. (CHE 0835) Polymer Engineering III. Cr. 3.

Prereq: CHE 0535 or MET 0535 or consent of instructor. Processes and preparation of condensation and addition polymers for the fields of fibers, plastics, and rubbers. Kinetics of rates of conversion, degree of polymerization, and structural identity and attitude as related to conditions of polymerization.

0831. Interaction of Radiation and Matter (CHE 0831). Cr. 3.

Prereq: MAT 0521 and PHY 0686 or MET 0821, or consent of instructor. Basic aspects of interaction of various radiations with matter. Nature of radiation and its propagation. Applications include reactor shielding, nuclear cross sections.

0835. Advanced Chemical Metallurgy. Cr. 3.

Prereq: MET 0758. Principles of thermodynamics and physical chemistry applied to heterogeneous systems. Computer control of operating systems.

0837. Principles of Steel Making. Cr. 3.

Prereq: MET 0460 and 0758 or equiv. Advanced study of the application of the principles of chemical metallurgy and of thermodynamics to the blast furnace and the refining furnace processes for iron production and steel making.

0845. Nuclear Engineering Materials. Cr. 3.

Prereq: MET 0300 and 0330 or consent of chairman. Integration of reactor design and materials. Reactor materials from the standpoint of basic structure or metallurgical micro-structure. Service problems and future requirements.

0847. Extractive Metallurgy. Cr. 3.

Prereq: MET 0460 or equiv. Advanced study of the application of the principles of chemical metallurgy and of thermodynamics to the processes for production of metals.

0880. Modern Physical Metallurgy. Cr. 3.

Prereq: consent of chairman. An advanced study of the theories of the metallic state and of solid state reactions in alloy systems. Problems and reports.

0889. Metallurgical Process Laboratory. (0,9). Cr. 3.

Prereq: MET 0486 and consent of chairman. An advanced course of group laboratory investigations of pilot plant scale metallurgical processes. Literature surveys, process design, assembly and operation of process to obtain operating data, yields, costs, and materials of construction. Periodic progress and final comprehensive engineering report of entire project.

0896. Research. Cr. 1-9 (Min. 4, Max. 9).

Prereq: consent of chairman and adviser. Library and laboratory investigation of an approved proposal for advanced research project. Conferences and periodic oral progress reports. Comprehensive report of entire project upon completion.

0897. Seminar. Cr. 2.

Prereq: consent of chairman.

0899. Master's Thesis Research and Direction. Cr. 1-6 (12 required).

Prereq: consent of adviser.

0997. Doctoral Seminar. Cr. 2-6 (Max. 6).

Prereq: consent of doctoral adviser; coreq: MET 0999.

0999. Doctoral Dissertation Research and Direction. Credits to be arranged.

Prereq: consent of chairman of departmental graduate committee. No more than ten credits may be elected before doctoral candidacy is obtained.

DIVISION OF ENGINEERING TECHNOLOGY

Office: 4855 Fourth Avenue

Telephone: (313) 577-0800

Acting Director: Robert B. Thornhill

PROFESSOR

Howard M. Hess (Emeritus)

ASSOCIATE PROFESSORS

James A. Day, Donald V. Stocker, Robert B. Thornhill, John G. Wright

ASSISTANT PROFESSORS

Karl O. Anderson, Francis E. Plonka

PART-TIME FACULTY

Gene O. Cowie, Seymour Cuker, Sudhendu Dhar, Charles D. Durrett, Jr., William P. Estes, Miklos Ferber, Elihu Geer, Michael F. Kowalski, Charles F. Loehner, Jr., James McCaslin, Kenneth R. Morrison, Andrew A. Seleno, James A. Speedie, Paul J. Tsai, James A. Warren

The evolution of our civilization has always been closely associated with technology and science. Now, and in the future, this association will become even more important.

New knowledge has inspired advances in technology resulting in new career opportunities. Far reaching developments have been made in communications and instrumentation technology. Highly sophisticated machine tools and manufacturing processes have come into being and new energy sources and man-made materials have been developed. Additionally, computer applications have revolutionized the techniques of industrial manufacturing and management.

This on-going expansion of scientific and engineering knowledge has changed the make-up of the engineering team and increased the demand for engineering technologists.

The engineering technologist, in cooperation with the engineer, organizes the men, materials, and equipment to design, construct, operate, maintain, and manage technical engineering projects. He or she should have a commitment to that technological progress which will create a better life for everyone.

DEGREE OFFERED

The program is under the direction of the College of Engineering and leads to the degree of Bachelor of Engineering Technology (B.E.T.). Major specialties are:

- Electrical/Electronic Engineering Technology
- Manufacturing/Industrial Engineering Technology
- Mechanical Engineering Technology
- Quality Control Technology — option in Manufacturing/Industrial Engineering Technology

The program is designed to admit students with an Associate Degree, or equivalent, in an engineering-related technology area, and to provide them with the junior and senior years of a four-year program. Classes are offered both day and evening.

ADMISSION

The requirement for admission to the Engineering Technology Program will, in general, be an Associate Degree in an engineering-related technology area.

An *Application for Undergraduate Admission* is required. Forms may be requested from: Office of Admissions, Wayne State University, Detroit, Michigan 48202.

FEES AND REGISTRATION

See pages 9-18 for additional information on admission, fees, registration, and student records.

MATHEMATICS QUALIFYING EXAMINATION

Students entering the Division are required to take a mathematics placement examination unless they come with advanced credit in calculus. This examination should be taken prior to the first registration at Wayne State University. Information regarding the examination can be obtained from the Division of Engineering Technology.

DEAN'S LIST OF HONOR STUDENTS

A student who achieves a quarterly honor point average of 3.5 or more, based on a program of at least twelve credits, is notified by the Dean of his citation for distinguished scholarship and his name is included on the Dean's List of Honor Students.

SUBSTANDARD PERFORMANCE

The grade D is considered by the Division of Engineering Technology to represent sub-standard performance. The implications of this are particularly significant in the science, mathematics, and technology sequences.

If a grade D is received in any course which is prerequisite to another course in his program, or in a course in his area of specialization, or in a required course in mathematics, physics, or chemistry, the student may be required by his coordinator to repeat that course.

A student not required to repeat a course in which a D grade has been received may elect to audit such a course to better his knowledge. However, he then may not later enroll in the course for credit or obtain credit for the course by Special Examination.

A course in which a grade below C has been earned may not be subsequently passed by Special Examination.

When repeating a course, failure for the third time to pass it with a grade satisfactory to the Division constitutes grounds for refusing a student further registration in the College of Engineering.

GRADUATION REQUIREMENTS

A minimum total of 180 credits is required for the Bachelor of Engineering Technology degree. Approximately half of this total should be earned before admission to Wayne State University. The student must have prior written approval of the specialty coordinator to elect courses at a community college after having been admitted to the engineering technology program at Wayne State University. University policy requires that at least forty-five credits toward the baccalaureate be earned at Wayne State.

At graduation, the University requires a minimum 2.0 (C) honor point average in the total residence credit. Additionally, the College requires a minimum 2.0 (C) honor point average in the total work taken in the area of specialization.

An English Proficiency Examination in Composition is required of each Division of Engineering Technology student. It is recommended that students take the examination at their earliest convenience. English 0130 and/or English 0150 should constitute adequate preparation. The examination is given during the registration period at the beginning of each quarter. Prescribed times are shown in the *Schedule of Classes* under the English Language and Literature Department of the College of Liberal Arts.

ELECTRICAL/ELECTRONIC ENGINEERING TECHNOLOGY

Coordinator: Donald V. Stocker

Students with an Associate Degree in electrical or electronic technology from a community college may be admitted to the bachelor's degree program in electrical/electronic engineering technology.

This program is designed to extend the practical and applied base of the Associate Degree program by means of more theoretical electrical and broad engineering technology courses together with further background courses in mathematics, science, and socio-humanities. The student has a choice of electives in several options, such as electric power, control systems, electronics, and computer technology.

The student who completes this curriculum receives the degree of Bachelor of Engineering Technology (Electrical/Electronic).

With the continued expansion in the use of electrical power, automatic control systems, solid state and micro electronics, communications systems, and computer technology, it is small wonder that Electrical and Electronic Engineering Technology is the fastest growing specialty area of all the engineering technologies.

Because the movement of electrons in a circuit is not a totally visible physical phenomena, the electrical/electronic engineering technologist does some of his work in the abstract. For example, through mathematical calculations and formulae, he determines the proper equipment or the proper components in an electronic circuit needed to amplify an electrical signal radiating from a star system millions of light years away.

Most electrical and electronic engineering technologists work in development, design, application, sales, and in the manufacture of products.

The two major divisions in the field are: power and electronics. The power specialist would work primarily with power generation and distribution systems of electrical equipment, motors, generators, appliances, and controls. The electronic specialist would develop and design electronic circuitry. This specialty is further fragmented by industry that would include computers, communication systems, electronic controls, and electronic devices.

Program Requirements

COMMUNICATIONS, HUMANITIES, AND SOCIAL SCIENCE

	<i>credits</i>
English Electives	8
Political Science 0101 American Government: Power and Policy	4
Psychology 0198 Introductory Psychology	4
Psychology 0350 Survey of Industrial and Personnel Psychology	4
Speech 0200 Effective Speech	4
Electives	12
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BASIC SCIENCE AND MATHEMATICS

Chemistry 0102 (or 0105) General Chemistry I	4
Computer Science 0285 Introduction to Digital Computing	4
Mathematics 0180 Elementary Functions	5
Mathematics 0340 (E T 0340) Applied Statistics	4
Mathematics 0342 (E T 0342) Applied Calculus I	4
Mathematics 0344 (E T 0344) Applied Calculus II	4
Physics 0215 General Physics	4
Physics 0213 General Physics	4
Science and Mathematics Electives	3
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TECHNICAL SCIENCES, TECHNICAL SPECIALTY, AND ELECTIVES

Engg. Technology 0114 Engineering Graphics I	3
Engg. Technology 0301 The Technological Professions	3
Engg. Technology 0303 Statics	4
Engg. Technology 0305 Dynamics	3
Engg. Technology 0387 Engineering Economic Analysis	4
Elect./Electronic Engg. Tech. 0333 Resistive Networks	4

Elect./Electronic Engg.			
Tech. 0335	.....	Alternating-Current Network Analysis	4
Elect./Electronic Engg.			
Tech. 0336	.....	Electrical Instrumentation	2
Elect./Electronic Engg.			
Tech. 0337	.....	Advanced Network Analysis	4
Elect./Electronic Engg.			
Tech. 0351	.....	Electronic Circuits I	4
Elect./Electronic Engg.			
Tech. 0352	.....	Electronics Laboratory I	2
Elect./Electronic Engg.			
Tech. 0383	.....	Introduction to Electromagnetic Design	4
Elect./Electronic Engg.			
Tech. 0408	.....	Design of Electrical Elements	4
Mechanical Engg. Tech. 0311	.....	Thermodynamics I	4
Mechanical Engg. Tech. 0321	.....	Heat Transfer	3
¹ W.S.U. Technical Specialty Electives	.....		8
² Electives	.....		48
			108
Total minimum quarter credits for the degree	.....		180

Plan of Work — Due to the wide variation in backgrounds of admitted students and different rates of progress made by full-time and part-time students, no sample program is included. However, individually tailored Plans of Work will be developed in conjunction with the specialty coordinator so that courses can be selected in the best order considering the student's academic preparation, individual course prerequisites, and proposed course scheduling.

MECHANICAL ENGINEERING TECHNOLOGY

Coordinator: John G. Wright

The upper division program in Mechanical Engineering Technology is intended primarily to provide the graduate with depth and breadth in technical science and technical specialties as well as in non-technical related areas.

Students having an Associate Degree in one of the following or related technical areas may be admitted to the program:

- | | |
|-----------------------|-----------------------|
| Aerospace Technology | Fluid Power |
| Automotive Technology | Mechanical Design |
| Climate Control | Mechanical Technology |
| Drafting | Powerplant |

Graduates of this curriculum will receive the degree of Bachelor of Engineering Technology (Mechanical) and enter a field of challenging work in which they are broadly concerned with energy, its transformation from one form to another, its transmission, and its utilization. This includes the conversion of chemical, nuclear, or solar energy into mechanical work; the transmission of energy via heat exchangers, pipe lines and mechanical systems; and the harnessing of energy to perform

¹ These electives must be selected with permission of the specialty coordinator. While they would normally be electrical/electronic engineering technology courses, certain other technology, computer science, mathematics, or business courses may be approved where appropriate.
² These electives would normally be Associate Degree transfer credits with the majority from electrical/electronics technology or related areas.

useful tasks. Mechanical engineering technologists are employed by every kind of industry to seek new knowledge through creative design and development, and to build and control the modern devices and systems needed by society.

Sequential elective courses to enhance a candidate's occupational possibilities can be selected in the areas of design, emissions, experimental, and thermal power.

Program Requirements

COMMUNICATIONS, HUMANITIES, AND SOCIAL SCIENCE

		<i>credits</i>	
English Electives	.....	8	
Political Science 0101	.....	American Government: Power and Policy	4
Psychology 0198	.....	Introductory Psychology	4
Psychology 0350	.....	Survey of Industrial and Personnel Psychology	4
Speech 0200	.....	Effective Speech	4
Electives	.....		12
			36

BASIC SCIENCE AND MATHEMATICS

Chemistry 0102 (or 0105)	.....	General Chemistry I	4
Computer Science 0285	.....	Introduction to Digital Computing	4
Mathematics 0180	.....	Elementary Functions	5
Mathematics 0340	.....	(ET 0340) Applied Statistics	4
Mathematics 0342	.....	(ET 0342) Applied Calculus I	4
Mathematics 0344	.....	(ET 0344) Applied Calculus II	4
Physics 0213	.....	General Physics	4
Physics 0214	.....	General Physics	4
Science and Mathematics Electives	.....		3
			36



TECHNICAL SCIENCES, TECHNICAL SPECIALTY, AND ELECTIVES

Engg. Technology 0114	Engineering Graphics I	3
Engg. Technology 0301	The Technological Professions	3
Engg. Technology 0303	Statics	4
Engg. Technology 0305	Dynamics	3
Engg. Technology 0310	Mechanics of Materials	4
Engg. Technology 0320	Engineering Materials	4
Elect./Electronic Engg. Technology 0331	Introduction to Electrical Technology	4
Elect./Electronic Engg. Technology 0336	Electrical Instrumentation	2
Engg. Technology 0387	Engineering Economic Analysis	4
Manufacturing/Industrial Engg. Technology 0330	Industrial Organization	4
Manufacturing/Industrial Engg. Technology 0351	Manufacturing Analysis	4
Mechanical Engg. Tech. 0311	Thermodynamics I	4
Mechanical Engg. Tech. 0312	Thermodynamics II	4
Mechanical Engg. Tech. 0340	Design of Machine Elements	4
Mechanical Engg. Tech. 0360	Fluid Systems	4
¹ W.S.U. Specialty Electives		8
² Electives		45
		108
Total minimum credits for the degree		180

Sample Program: For students with an Associate Degree in mechanical technology from a community college with transfer credits which include approximately thirty to forty credits in a specialty area, eight credits in college English, twelve credits in physics, four credits in chemistry, three credits in engineering graphics, four credits in American government and four credits of elective in communications or socio-humanities.³

Third Year

<i>Seventh Quarter</i>		<i>credits</i>
Engg. Technology 0320	Engineering Materials	4
Mathematics 0180	Elementary Functions	5
Psychology 0198	Introductory Psychology	4
Speech 0200	Effective Speech	4
		17

Eighth Quarter

Engg. Technology 0301	The Technological Professions	3
Engg. Technology 0303	Statics	4
Mathematics 0340	(ET 0340) Applied Statistics	4
Mathematics 0342	(ET 0342) Applied Calculus I	4
		15

Ninth Quarter

Engg. Technology 0305	Dynamics	3
Mathematics 0344	(ET 0344) Applied Calculus II	4
Mechanical Engg. Tech. 0311	Thermodynamics I	4
Psychology 0350	Survey of Industrial and Personnel Psychology	4
		15

Fourth Year

Tenth Quarter

Computer Science 0285	Introduction to Digital Computing	4
Elect./Electronic Engg. Technology 0331	Introduction to Electrical Technology	4
Engg. Technology 0310	Mechanics of Materials	4
Mechanical Engg. Tech. 0312	Thermodynamics II	4
		16

Eleventh Quarter

Elect./Electronic Engg. Technology 0336	Electrical Instrumentation	2
Manufacturing/Industrial Engg. Technology 0351	Manufacturing Analysis	4
Mechanical Engg. Tech. 0340	Design of Machine Elements	4
Socio-Humanistic, Communications Electives		4
Technical Specialty Elective		3
		17

Twelfth Quarter

Engg. Technology 0387	Engineering Economic Analysis	4
Manufacturing/Industrial Engg. Technology 0330	Industrial Organization	4
Mechanical Engg. Tech. 0360	Fluid Systems	4
Technical Specialty Elective		4
		16

MANUFACTURING/INDUSTRIAL ENGINEERING TECHNOLOGY

Coordinator: Karl O. Anderson

The manufacturing/industrial engineering technologist is involved in the design, planning, supervision, construction, and management of the methods and equipment for the production of industrial and consumer goods.

Students entering this program would normally have an Associate Degree from a community college in one of the following technical areas:

Drafting	Metallurgy
Industrial Management	Metals Machining
Industrial Technology	Metrology and Calibration
Manufacturing	Numerical Control
Machine Tools	Welding

¹ These electives must be selected with permission of the specialty coordinator. While they would normally be mechanical engineering technology courses, certain other technology, computer science, mathematics, or business courses may be approved where appropriate.

² These electives will be Associate Degree transfer credit for most students with the majority in the individual's specialty area.

³ Actual programs will probably vary from this sample depending on the courses taken by the student in the Associate Degree curriculum.

The program is designed to extend the practical and applied base of the Associate Degree by providing the graduate with depth and breadth in technical science and technical specialty courses as well as in non-technical related areas.

Graduates of this curriculum will receive the degree Bachelor of Engineering Technology (Manufacturing/Industrial).

The magnitude of the manufacturing/industrial engineering technologist's responsibility can be best illustrated by examining a modern manufacturing plant. Within a typical facility, there are many machines performing hundreds of operations on thousands of parts. These processes include highly automated equipment which produce quality products built to exact specifications. Whether it be a single gear or a complete automobile engine, the logical set of events that result in a finished product is planned in advance. The location of every machine, every movement of a tool or part, the order of operations, even the machines themselves, are planned in detail as part of a total production system by the manufacturing/industrial engineering technologist.

A manufacturing/industrial engineering technologist may choose to specialize in such areas as quality control, plant engineering, manufacturing engineering, production planning and control, or supervision and management.

Program Requirements

COMMUNICATIONS, HUMANITIES, AND SOCIAL SCIENCE

	<i>credits</i>
English Electives	8
Political Science 0101	4
American Government: Power and Policy	4
Psychology 0198	4
Introductory Psychology	4
Psychology 0350	4
Survey of Industrial and Personnel Psychology	4
Speech 0200	4
Effective Speech	4
Electives	12
	36

BASIC SCIENCE AND MATHEMATICS

	<i>credits</i>
Chemistry 0102 (or 0105)	4
General Chemistry I	4
Computer Science 0285	4
Introduction to Digital Computing	4
Mathematics 0180	5
Elementary Functions	5
Mathematics 0340	4
(E T 0340) Applied Statistics	4
Mathematics 0342	4
(E T 0342) Applied Calculus I	4
Physics 0213	4
General Physics	4
Physics 0214	4
General Physics	4
Physics 0215	4
General Physics	4
Science and Mathematics Electives	3
	36

TECHNICAL SCIENCES, TECHNICAL SPECIALTY, AND ELECTIVES

	<i>credits</i>
Engg. Technology 0114	3
Engineering Graphics I	3
Engg. Technology 0115	3
Engineering Graphics II	3
Engg. Technology 0301	3
The Technological Professions	3
Engg. Technology 0303	4
Statics	4
Engg. Technology 0305	3
Dynamics	3

Engg. Technology 0310	4
Mechanics of Materials	4
Engg. Technology 0320	4
Engineering Materials	4
Engg. Technology 0387	4
Engineering Economic Analysis	4
Elect./Electronic Engg. Technology 0331	4
Introduction to Electrical Technology	4
Elect./Electronic Engg. Technology 0336	2
Electrical Instrumentation	2
Manufacturing/Industrial Engg. Technology 0330	4
Industrial Organization	4
Mechanical Engg. Tech. 0360	4
Fluid Systems	4
Manufacturing/Industrial Engg. Technology 0191	4
Welding, Casting and Forming Processes	4
Manufacturing/Industrial Engg. Technology 0291	4
Machine Tool Operations	4
¹ W.S.U. Technical Specialty Electives	8
² Electives	50
	107
Total minimum quarter credits for the degree	180

TECHNICAL SPECIALTY GROUPS

Course numbers and topics covered:

- A. Process Selection and Design:
 - MIT 0332 — Production and Inventory Management
 - MIT 0360 — Parts Processing
 - MIT 0470 — Simulation for Manufacturing Analysis
- B. Machine and Tool Design:
 - E T 0490 — Guided Study
 - MCT 0340 — Design of Machine Elements
- C. Inspection and Quality Assurance:
 - MIT 0380 — Quality Control I
 - MIT 0430 — Quality Control II
 - MIT 0440 — Quality Control III
- D. Metallurgy and Materials:
 - E T 0360 — Structure and Properties of Metals I
 - E T 0365 — Structure and Properties of Metals II
 - E T 0420 — Structure and Properties of Metals III
- E. Numerical Control Systems and Programming:
 - MIT 0370 — Numerical Control
 - MIT 0375 — APT Programming I
 - MIT 0475 — APT Programming II
 - B E 0314 — Computer Graphics I
 - B E 0414 — Computer Graphics II
- F. Industrial Operations:
 - MIT 0322 — Methods Analysis and Time Study
 - MIT 0325 — Materials Handling
 - MIT 0335 — Human Factors for Technologists
 - MIT 0425 — Plant Layout and Facilities Design
- G. Research and Guided Studies:
 - MIT 0490 — Guided Study
 - MIT 0491 — Manufacturing Research

¹ These courses would normally be taken from Groups A through H.

² These electives will be Associate Degree transfer credit for most students with the majority in the individual's specialty area.

H. Management and Supervision:

ACC 0310 — Elementary Accounting Theory I
 ACC 0311 — Elementary Accounting Theory II
 ACC 0351 — Business Law — Contracts, Agency

or

ACC 0353 — Business Law — Corporations,
 Partnerships

B A 0590 — Social and Political Influences on Business

MGT 0559 — Introduction to Management

MGT 0560 — Introduction to Production
 Management

MKT 0530 — Marketing Management

QUALITY CONTROL TECHNOLOGY OPTION

Coordinator: Francis E. Plonka

Students in this program first enroll at a community college which offers engineering related technical curriculums leading to an Associate Degree with a major specialty in a technical area after approximately two years of full-time study. While not necessary, students are encouraged to specialize in a quality control related program. In the Detroit Metropolitan Area, Henry Ford Community College, Macomb County Community College, and Washtenaw Community College all have excellent associate degree programs in either metrology or quality control.

Upon receipt of the Associate Degree one can transfer to Wayne State University and work toward a Bachelor of Engineering Technology Degree. After approximately two years of full-time study in the Division of Engineering Technology he or she will receive the Bachelor of Engineering Technology Degree with a major specialty in Manufacturing/Industrial Engineering Technology under the Quality Control option.

The curriculum is designed to extend the practical and applied base of the Associate Degree program by means of more advanced manufacturing and quality control related courses supplemented by broad engineering technology courses together with further background courses in mathematics, science, and socio-humanities. The student has a choice of electives in several options, such as manufacturing simulation, human factors engineering, production and inventory management and industrial experimental design.

Today's industry is engulfed in an unprecedented wave of consumerism where the general public, led by various consumer advocates and organizations, has focused intense attention on defect-free products. To design, implement, and evaluate a system to guard against defects with a high degree of assurance and within the present economic environment requires people trained in the disciplines of quality technology. Since the quality control system must interface with the entire production process, these disciplines include people-oriented subjects (human factors engineering) and scientific analysis (statistics) as well as the engineering technologies.

¹ These electives must be selected with permission of the specialty coordinator. While they would normally be quality control related courses, certain other technology, computer science, mathematics, or business courses may be approved where appropriate.

² These electives will be Associate Degree transfer credit for most students with the majority in the individual's specialty area.

Program Requirements

COMMUNICATIONS, HUMANITIES, AND SOCIAL SCIENCE

	credits
English Electives	8
Political Science 0101	4
American Government: Power and Policy	4
Psychology 0198	4
Introductory Psychology	4
Psychology 0350	4
Survey of Industrial and Personnel Psychology	4
Speech 0200	4
Effective Speech	4
Electives	12
	36

BASIC SCIENCE AND MATHEMATICS

Chemistry 0102 (or 0105)	4
General Chemistry I	4
Computer Science 0285	4
Introduction to Digital Computing	4
Mathematics 0180	5
Elementary Functions	5
Mathematics 0340	4
(E T 0340) Applied Statistics	4
Mathematics 0342	4
(E T 0342) Applied Calculus I	4
Mathematics 0344	4
(E T 0344) Applied Calculus II	4
Physics 0213	4
General Physics	4
Physics 0214	4
General Physics	4
Science and Mathematics Electives	3
	36

TECHNICAL SCIENCES, TECHNICAL SPECIALTY, AND ELECTIVES

Engg. Technology 0114	3
Engineering Graphics I	3
Engg. Technology 0301	3
The Technological Professions	3
Engg. Technology 0303	4
Statics	4
Engg. Technology 0310	4
Mechanics of Materials	4
Engg. Technology 0320	4
Engineering Materials	4
Engg. Technology 0387	4
Engineering Economic Analysis	4
Mechanical Engg. Tech. 0360	4
Fluid Systems	4
Elect./Electronic Engg. Technology 0331	4
Introduction to Electrical Technology	4
Elect./Electronic Engg. Technology 0336	2
Electrical Instrumentation	2
Manufacturing/Industrial Engg. Technology 0291	4
Machine Tool Operations	4
Manufacturing/Industrial Engg. Technology 0351	4
Manufacturing Analysis	4
Manufacturing/Industrial Engg. Technology 0380	4
Quality Control I	4
or	
Manufacturing/Industrial Engg. Technology 0322	4
Methods Analysis and Time Study	4
Manufacturing/Industrial Engg. Technology 0332	4
Production and Inventory Management	4
or	
Manufacturing/Industrial Engg. Technology 0430	4
Quality Control II	4
Manufacturing/Industrial Engg. Technology 0425	4
Plant Layout and Facilities Design	4
or	
Manufacturing/Industrial Engg. Technology 0470	4
Simulation for Manufacturing Analysis	4
¹ W.S.U. Technical Specialty Electives	8
² Electives	48
	108
Total minimum quarter credits for the degree	180

COURSES OF INSTRUCTION¹

DIVISION OF ENGINEERING TECHNOLOGY

Engineering Technology (ET)

0114. Engineering Graphics I (ME 0114), (2,3), Cr. 3.
Theory and application of projection drawing; multiview drawing and sketching; pictorial drawing and sketching; sectional views; basic techniques of dimensioning; charts and graphs.

0115. Engineering Graphics II (ME 0115), (2,3), Cr. 3.
Prereq: ET 0114. Multiview and pictorial drawing of complex objects; advanced dimensioning techniques; standard drafting room practices; drafting standards, interpretation of industrial drawings; major topics in descriptive geometry — primary and successive auxiliary views, lines and line measurements, planes and plane measurements, intersection of two- and three-dimensional objects; revolution of lines and surfaces.

0301. The Technological Professions, (2,2), Cr. 3.
Prereq: MAT 0180. The engineer and technologist and their relationship to society with emphasis on design as the unifying characteristic of engineering and technology.

0303. Statics, (3,2), Cr. 4.
Prereq: PHY 0213; prereq. or coreq: ET 0301. The algebraic and graphic techniques for determining the forces acting upon a body or structural component under static load.

0305. Dynamics, Cr. 3.
Prereq: ET 0303 and 0342. Kinematics. Kinetics of translation and rotation of a rigid body. Relative motion. Use of equations of plane motion. Application of impulse and momentum principles. Work and efficiency.

0310. Mechanics of Materials, Cr. 4.
Prereq: ET 0303. The elastic behavior of load-bearing materials. Tension, compression, shear, combined stress, bending, torsion and columns.

0320. Engineering Materials, Cr. 4.
Prereq: CHM 0102. Application and characteristics, both physical and chemical, of metallic and non-metallic materials used in industry. The primary processes involved in producing these materials.

0340. (MAT 0340) Applied Statistics, Cr. 4.
No degree credit in College of Liberal Arts. Prereq: college algebra. The application of probability concepts and statistical theory in the use of engineering data.

0342. (MAT 0342) Applied Calculus I, Cr. 4.
No degree credit in College of Liberal Arts. Prereq: MAT 0180. The application of differential and integral calculus and analytical geometry to engineering problem situations.

0344. (MAT 0344) Applied Calculus II, Cr. 4.
No degree credit in College of Liberal Arts. Prereq: ET 0342. A continuation of Engineering Technology 0342 including the application of ordinary differential equations to engineering problem situations.

0360. Structure and Properties of Metals I, (3,2), Cr. 4.
Prereq: ET 0320 and CHM 0102. The physical, chemical, and mechanical properties of metal; iron and steel.

0365. Structure and Properties of Metals II, Cr. 4.
Prereq: ET 0360. The physical metallurgy of alloy steels and non-ferrous metals.

0387. Engineering Economic Analysis, Cr. 4.
Prereq: MAT 0180. Principles and techniques for analyzing projects involving the acquisition and replacement of capital equipment.

0420. Structure and Properties of Metals III, (3,2), Cr. 4.
Prereq: ET 0365. Physical metallurgy of light metals and alloys; precious and specialty metals. Forming and processing of materials.

0465. Technology Assessment and Forecasting, Cr. 4.
Prereq: senior standing or consent of instructor. In-depth study of the methods of technological assessment and forecasting.

0490. Guided Study, Cr. 1-9 (Max. 9).
Prereq: consent of instructor. Supervised study and instruction in field selected by student.

0501. Architectural Drawing I, (2,6), Cr. 4.
Graduate credit for art education, industrial education, and family and consumer resources majors only. Creating and designing plans and elevations as related to residences. Functional room layouts. Study of styles and construction. Architectural graphic standards, architectural working drawings with dimensions, sections and details.

0502. Architectural Drawing II, (2,6), Cr. 4.
Prereq: ET 0501. Graduate credit for art education, industrial education, and family and consumer resources majors only. Theory and construction of perspectives. Perspective rendering in color and presentation procedures. Study of the scale model and building materials. Specifications and business dealings with the architect and contractor.

Civil Engineering Technology (CET)

0311. Structures I, Cr. 4.
Prereq: ET 0310. Utilization of basic principles of applied mechanics in stress analysis of simple structures. Bridge and roof trusses. Movable loads, critical loadings by influence lines. Deflection of structures.

0312. Structures II, Cr. 4.
Prereq: CET 0311. Introduction to analysis of statically indeterminate structures. Approximate and exact analysis of framed structures.

0313. Design of Structural Elements, Cr. 4.
Prereq: CET 0311. Design computations covering the simple structural elements and portions of integral structures of timber and steel.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

0314. Soil Mechanics and Foundations. (3,3). Cr. 4.
Prereq: ET 0310. Identification and classification of soils, stresses in soils, bearing capacity and settlement, testing procedures. Seepage, drainage, and frost action.

0315. Construction Techniques and Equipment. Cr. 4.
Contractor's office and field organization: responsibilities, functions. Review of construction equipment, capabilities, productivity measurements, maintenance programs. Safety practices; laws and codes; accident and insurance procedures.

0316. Project Management. (3,3). Cr. 4.
Prereq: CET 0315. Use of critical path method for supervision to plan, schedule and control projects; manual and computer systems. Control of time and costs.

0490. Guided Study. Cr. 1-9 (Max. 9).
Prereq: senior standing; consent of instructor. Supervised study, and instruction in field selected by student.

Electrical/Electronic Engineering Technology (EET)

0331. Introduction to Electrical Technology. Cr. 4.
For non-electrical majors. Prereq: ET 0342 and PHY 0214. Kirchhoff's laws, D.C. and A.C. circuit analysis, impedance, phasors, power and R.M.S. values, mutual coupling. Power transformer, D.C. and A.C. generators and motors, motor controls.

0333. Resistive Networks. Cr. 4.
Prereq: ET 0301. Kirchhoff's laws, mesh and nodal analysis network reduction, voltage and current division, superposition, Thevenin's and Norton's theorems, dependent sources, and time-varying sources.

0335. Alternating-Current Network Analysis. Cr. 4.
Prereq: EET 0333 and ET 0342. Voltage-current relationships for inductors and capacitors, total response in first-order systems, sinusoidal sources, phasors, impedance, power reactive power, power factor.

0336. Electrical Instrumentation. (1,3). Cr. 2.
Prereq: EET 0331 or 0335. Theory and use of electrical instruments, power supplies, bridges, potentiometers, oscilloscopes, electronic instruments, and transducers.

0337. Advanced Network Analysis. Cr. 4.
Prereq: EET 0335 and ET 0344. Frequency response and resonance, three-phase systems, two-port networks, magnetically coupled circuits, total response in second-order systems, Fourier-series analysis, complex frequency.

0351. Electronic Circuits I. Cr. 4.
Prereq: EET 0331 or 0335. Introduction to the behavior of semiconductor and electron devices. Graphical and small-signal analysis. Single-stage circuits.

0352. Electronics Laboratory I. (1,3). Cr. 2.
Prereq: EET 0336 and 0351. Capabilities and uses of electronic instruments. Experimental investigation of electron and semiconductor devices and their behavior in single-stage circuits.

0383. Introduction to Electromagnetic Design. (3,2). Cr. 4.
Prereq. or coreq: EET 0335. Forces and energy in static electric and magnetic fields, design analysis of resistors, capacitors, inductors, and tractive magnets.

0408. Design of Electrical Elements. (2,4). Cr. 4.
Prereq: CSC 0285, EET 0383, and MCT 0321. Guided-design project. Thermal and economic factors in electrical design. Design of electrical elements and simple systems. Computer-aided design of electrical/electronic networks.

0421. Electrical Machinery. Cr. 4.
Prereq: EET 0335 and 0383. Physical and operating characteristics of D.C. and A.C. generators and motors, transformers, equivalent circuits, motor controls.

0422. Electrical Machinery Laboratory. (0,3). Cr. 1.
Prereq: EET 0421. Input-output characteristics of small motors, generators, and transformers.

0441. Power System Performance. Cr. 4.
Prereq: EET 0335. Electric power plants, three-phase systems, generation, transmission and distribution of electric power, power system apparatus, efficiency and economics of power system operation.

0443. Power System Analysis. Cr. 4.
Prereq: EET 0335. Per-unit notation, power network analysis and reduction, load-flow analysis, short-circuit currents, symmetrical components.

0445. Power System Design. Cr. 4.
Prereq: EET 0441. Electrical specifications and estimating, power circuit layout, power factor correction, voltage drop calculations, motor power supply and control, elements of illumination.

0447. Control System Analysis. Cr. 4.
Prereq: EET 0337. Modeling of system components, linearization of characteristics, frequency response, feedback analysis, stability analysis and criteria.

0448. Control Systems Laboratory. (0,6). Cr. 2.
Prereq: EET 0447. Measurement and calculation of control-system parameters, experimental analysis of open-loop and closed-loop systems, compensation.

0453. Electronic Communication Circuits. Cr. 4.
Prereq: ECE 0351. Multistage amplifiers, power, efficiency, distortion, input and output impedance, frequency response, feedback, oscillators, modulators, demodulators, integrated circuits.

0454. Electronic Communications Laboratory. (1,3). Cr. 2.
Prereq: EET 0453. Frequency, power, and performance characteristics of electronic communications circuits.

0456. Pulse Circuits. Cr. 4.
Prereq: ECE 0351. Analysis of electronic circuits for wave-shaping, timing, triggering, and counting.

0468. Switching and Logic Circuits. Cr. 4.
Prereq: senior standing. Logic network components and systems, switching circuit analysis, computer circuits, automation controls.

0485. Transmission of Energy and Signals. Cr. 4.
Prereq: EET 0337 and 0383. Transmission equations, line parameters, terminations, distortion, reflection, and loading. Full-frequency analysis of transmission-line performance.

0490. Guided Study. Cr. 1-9 (Max. 9).

Prereq: senior standing; consent of instructor. Supervised study and instruction in field selected by student.

Manufacturing/Industrial Engineering Technology (MIT)

0191. Welding, Casting and Forming Processes. (2,4). Cr. 4.

Fundamental theory and unit operations covering gas and arc welding, cutting, brazing, spot welding, forging, heat treatment, electroplating, forming and casting techniques on ferrous and non-ferrous materials. Includes substantial laboratory experience.

0200. Materials and Processes of Industry. (2,1). Cr. 3 (Max. 9).

Open only to students from the Center for Creative Studies. Theory and practical application of manufacturing processes as related to the industrial design process.

0291. Machine Tool Operations. (2,4). Cr. 4.

Fundamental theory of machining and operation of machine tools. Unit operations on lathes, mills, shapers, grinders, related service equipment, and assembly of processed parts. Includes substantial laboratory experience.

0322. Methods Analysis and Time Study. (2,4). Cr. 4.

Development of the fundamental concepts and approaches to time and motion study; application of the principles of motion economy.

0325. Materials Handling. Cr. 4.

Materials handling elements, the unit load, packaging, bulk handling, the economics of materials handling, improving existing handling methods, justification for handling equipment, and special techniques.

0330. Industrial Organization. Cr. 4.

Prereq: junior standing. Principles and types of organizations, departmental functions, plant location and layout, job study, production control, wage payments, motion and time study, quality control, and an appreciation of the human problems in industry.

0332. Production and Inventory Management. Cr. 4.

Prereq: E T 0340 or MIT 0380. Basic principles of production scheduling and inventory management. Production planning, project management, inventory functions, and inventory costs.

0335. Human Factors for Technologists. Cr. 2.

Prereq: PSY 0198. Introduction to the physiological and psychological capacities of man; sensory information processing and motorabilities of man as these factors affect job design.

0340. Metrology. (2,2). Cr. 3.

Prereq: MIT 0291 or equiv. Science of measurements. Standards and specification, inspection principles. Measuring and gaging equipment. Nonprecision, precision and comparative measurements and their applications to dimensional quality control. Typical inspection problems. Laboratory work in the use of inspection equipment.

0351. Manufacturing Analysis. Cr. 4.

Comprehensive analytical and theoretical study of manufacturing processes including casting, forming, machining, welding, and fabrication of common materials. Laboratory demonstrations.

0360. Parts Processing. Cr. 4.

Prereq: MIT 0351 or equiv. Processing function. Method of manufacturing analysis. Manufacturing sequence, mechanization. Selection of tooling and equipment. Planning the process of manufacture.

0370. Numerical Control. Cr. 4.

Prereq: MIT 0351 or equiv. Fundamental concepts of numerical control as it relates to the machine, the control, the part program. Positioning systems; contouring systems; NC machine design; servo-mechanisms; axis and motion nomenclature; set-up procedures; tape coding and formatting; coordinate coding; feedrate and spindle speed coding; ancillary control system features.

0375. APT Programming I. Cr. 3.

Prereq: MIT 0351 or equiv. Concepts of APT. Geometry statements, motion and start-up techniques, computer capabilities, special considerations, post processor interfacing.

0380. Quality Control I. Cr. 4.

Prereq: E T 0340. Introduction to total quality systems design and to the basic analytical techniques for quality control.

0425. Plant Layout and Facilities Design. (3,2). Cr. 4.

Prereq: MIT 0322 and 0332. Design of production and service facilities including equipment location, materials movement, material storage, maintenance facilities, and estimation of personnel requirements.

0430. Quality Control II, (3,2). Cr. 4.

Prereq: MIT 0380. A continuation of Manufacturing and Industrial Engineering Technology 0380. Analytical techniques for quality control systems, design, and analysis.

0440. Quality Control III. Cr. 4.

Prereq: MIT 0430. The development and use of process control charts, introduction to lot and process characteristics, estimation, and hypothesis testing as it applies to manufacturing operations.

0450. Theory of Metal Cutting. (2,2). Cr. 2.

Prereq: MIT 0291 or equiv. Tool life, chip formation, cutting forces, stresses. Mechanics of shear zone. Friction and surface finish measurements. Economics of machining. Strain gage dynamometers. Experiments in energy conversion in metal cutting and machinability.

0460. Industrial Experimental Design. (3,2). Cr. 4.

Prereq: MIT 0440. Introduction to instrumentation problems and analysis of measuring systems. Concepts in planning industrial experimentation considering objectives, sources of variability, cost, and time constraints.

0470. Simulation for Manufacturing Analysis. (3,2). Cr. 4.

Prereq: E T 0340 and CSC 0285. Introduction to simulation modeling of manufacturing operations. Model building, model verification, and simulation program coding.

0472. Fundamentals of Manufacturing Computer Control. Cr. 4.

Prereq: senior standing or consent of instructor. The application of computers in a manufacturing environment. Organization and implementation of a manufacturing computer system.

0475. APT Programming II. Cr. 3.

Prereq: MIT 0375. APT system capability; advanced techniques available to the part programmer. APT innovations: multiple intersection capabilities, two surface start-up techniques, looping, copy and macro techniques, multi-axis programming, and pocket routines.

0490. Guided Study. Cr. 1-9 (Max. 9).

Prereq: senior standing; consent of instructor. Supervised study and instruction in the field selected by the student.

0491. Research Methods in Materials and Processes. (1,6). Cr. 4.

Prereq: senior standing. Procedures and limitations of research. Equipment used for gathering and computing data. Individual research project to be originated by the student.

Mechanical Engineering Technology (MCT)

0311. Thermodynamics I. Cr. 4.

Prereq: PHY 0213 and ET 0342. A study of the first and second laws of thermodynamics with applications to gas and vapor processes and an introduction to cycles.

0312. Thermodynamics II. Cr. 4.

Prereq: MCT 0311. Power and refrigeration cycles, gas and vapor mixtures, nozzle and blade passage flow, and combustion.

0321. Heat Transfer. Cr. 3.

Prereq: MCT 0311. A study of the basic modes of heat transfer and their applications. Steady state conduction in one and two dimensions and transient conduction. Numerical and graphical methods.

0340. Design of Machine Elements. (3,2). Cr. 4.

Prereq: ET 0305, 0310, and 0320. Fundamental concepts involved in the correct design of the separate elements which compose the machine; application of properties and mechanics of materials modified by practical considerations.

0341. Applied Kinematics. (1,5). Cr. 3.

Prereq. or coreq: MCT 0340. Velocity and acceleration determination of moving parts in machine elements and mechanisms using graphical and analytical techniques. Cam, gear and gear train design and analysis.

0360. Fluid Systems. Cr. 4.

Prereq: ET 0305. Properties of hydraulic fluids, fundamentals of fluid flow, dimensional analysis and similitude, and flow measurement techniques. Analysis of hydrostatic equipment, hydrokinetic equipment, and systems.

0480. Combustion Engines. Cr. 4.

Prereq: MCT 0312. Thermodynamics and cycle analysis of spark ignition, compression ignition, and gas turbine engines. Combustion processes in actual systems, performance characteristics, combustion abnormalities. Analysis of intake, fuel and exhaust systems.

0481. Combustion and Emissions. Cr. 4.

Prereq: MCT 0480. Fundamentals of emission formation in combustion systems, wall quenching and imperfect combustion, unburned hydrocarbons, carbon monoxide, aldehydes, nitrogen oxides, species stratification in the combustion chamber, particulates. Effect of design parameters and engine operating variables on emission formation. Emission control and instrumentation.

0482. Gas Turbine Power. Cr. 4.

Prereq: MCT 0312 and 0321. The thermodynamic analysis of the gas turbine processes. Study of plant components. Applications to aircraft propulsion, stationary, mobile and marine power.

0483. Thermal Environmental Engineering. Cr. 4.

Prereq: MCT 0312 and 0321. Concepts and techniques in refrigeration and air conditioning.

0484. Air Pollution Control. Cr. 4.

Prereq: MCT 0312. The sources of air pollution, methods for evaluating the nature and magnitude of contamination, and the methods and processes for the prevention and abatement of air pollution.

0485. Nuclear Power. Cr. 4.

Prereq: MCT 0311 and senior standing. Introduction to nuclear engineering including a study of nuclear fission and the chain reaction; nuclear reactor principles, operation and materials; and reactor concepts, heat removal, and power cycles.

0490. Guided Study. Cr. 1-9 (Max. 9).

Prereq: senior standing; consent of instructor. Supervised study and instruction in the field selected by the student.



College of Engineering Directory

Dean

Room 141, Engineering Building; telephone: 577-3775

Associate Dean — Undergraduate Programs

Room 141, Engineering Building; telephone: 577-3780

Associate Dean — Graduate Programs and Research

Room 136, Engineering Building; telephone: 577-3861

Administrative Officer

Room 141, Engineering Building; telephone: 577-3817

Director, Engineering Technology

4855 Fourth Avenue; telephone: 577-0800

Coordinator, Cooperative Education

University Placement Office, Mackenzie Hall

Coordinator, Extension Program

Room 141, Engineering Building; telephone: 577-3812

Chemical Engineering and Metallurgical Engineering

Room 128, Engineering Building; telephone: 577-3800

Civil Engineering

667 Merrick Avenue; telephone: 577-3789

Electrical and Computer Engineering

Room 306, Engineering Building; telephone: 577-3920

Industrial Engineering and Operations Research

640 Putnam Street; telephone: 577-3821

Mechanical Engineering

667 Merrick Avenue; telephone: 577-3845

Research Institute for Engineering Sciences

Room 220, Engineering Building; telephone: 577-3867

The Engineering Building is located at 5050 Anthony Wayne Drive.

Mailing address for all offices: College of Engineering, Wayne State University, 5050 Anthony Wayne Drive, Detroit, Michigan 48202.

**Division of
Health and Physical Education**

DIRECTOR: CHALMER G. HIXSON

Foreword

Health, dance, physical education and recreation, as integral parts of a general education, focus attention upon the vital needs of the human organism to acquire attitudes, knowledge and skills necessary for regular participation in physical activity. The decreased demands for physical vigor, as well as the increased tensions caused by the technological progress of the modern era, demand a scientific approach to these vital phases of well-being.

The Division of Health and Physical Education is a separate, autonomous administrative unit in the University. It provides courses of instruction in dance, driver education, health education, physical education and recreation and park services for the general student body of the total University. In addition, it provides professional curricula at the undergraduate and graduate levels for those students seeking careers in these areas.

After instructional courses, provision for further participation in physical education activities is provided by the following co-curricular programs: co-recreational activities in sports, dance, and swimming; intramural athletics for men and women; intercollegiate sports for men and women in team and individual sports. Courses in these areas may be used to meet degree and curricular requirements of the various schools and colleges of the University. Students are advised to consult their academic advisers in their respective schools or colleges.



HEALTH AND PHYSICAL EDUCATION

PROFESSIONAL PROGRAMS

Professional programs in the Division of Health and Physical Education include:

Undergraduate

- Dance concentration
- Physical Education major
- Health Education minor
- Recreation and Park Services major

Graduate

- Dance concentration
- Health Education
- Physical Education
- Recreation and Park Services

PROFESSIONAL CURRICULA

Programs leading to the bachelor's degree and the master's degree in health education and physical education and in recreation and park services are offered under the guidance of the Division of Health and Physical Education. Course patterns for these degree programs are developed in consultation with Division advisers. Students who wish to pursue programs in dance, driver education or health education must plan individual programs with advisers in these particular areas.

HEALTH RATING

All students enrolled in physical education courses must present a health card to the course instructor. This card is issued by the University Health Service and indicates the student's health rating. Ratings given are:

- A Students may participate in any course listed.
- B1 Limited activity. Students may participate in all but a few specified types of activity.
- B2 Limited activity. Students may not participate in contact-competitive sports and the extent of participation in other activities will be specified.
- B3 Limited activity. Students may participate in only a few specified activities.
- C Students may enroll only in the "Individual Physical Education" courses where activities are prescribed on an individual basis by the University Health Service.

UNDERGRADUATE CURRICULA

PHYSICAL EDUCATION

The curriculum leading to the Bachelor of Science degree in Physical Education requires a minimum of 186 credits and is divided into three general areas of study:

General Education is a nonspecialized, nontechnical education oriented toward preparing the student for intelligent living and competent citizenship. Courses in this area draw from wide divisions of knowledge and may also apply as foundation experiences for specialized professional education (approximately 80 credits).

A minimum number of credits in general education, Liberal Arts courses, are required, consisting of approximately 65 credits of basic requirements in science, social science, English and speech, etc., as well as additional courses elected to broaden and/or supplement students' interests. Such elections must develop a minor of 30 credits, or develop a group minor of 36 credits, or develop a second major of 45-54 credits.

General Education areas include:

Art*	<i>Science areas:</i>	<i>Social Science areas:</i>
English & Speech*	Biology*	Anthropology
Foreign Language*	Chemistry*	Geography*
Humanities	Health Education*	History*
Journalism*	Physics*	Political Science
Mathematics*	Psychology, Intro.	Psychology
Music*	Science (general)*	Sociology
	Health	Social Studies (general)*
	Physical Science	

General Professional Education consists of curricular experiences, partially provided by the College of Education, that are common to teachers of all disciplines. General professional courses include 32 credits in:

Teacher Education 3355..... Professional Education: Theory and Practice I
Physical Education 3250..... Educational Methods in Physical Education
Physical Education 3242 & 4242..... Student Teaching and Seminar

Specialized Professional Education consists of courses in physical education designed to provide for the competencies essential in teaching varied and sequential physical education activities and related experiences.

Specialized experiences in physical education are divided into several categories: health education, basic activities, lecture-laboratory courses including theory and practice offerings, theory courses, and physical education electives. A minimum of 12 credits in basic activity courses must be selected according to personal needs and prerequisites to theory and practice courses. A maximum of 15 credits in basic activities may be counted toward the 186 credits required for graduation.

*Certifiable fields in which a student may develop a minor.

DANCE EDUCATION CONCENTRATION

With a Major in Physical Education

This structure enables students to combine in their college curriculum an opportunity to develop their skill as dancers and choreographers while developing their potential as teachers. The student must take 36 credits of dance courses within a total of 186 credits. In addition to the major of 54 credits in physical education, the student must have a minor in science, social science, English, speech, or a language. Related courses in the arts and humanities are also included in the program of studies. Applicants for this program must be a member of a University performing group in dance for at least one year. The curriculum culminates in a Bachelor of Science in Education and a Michigan Provisional Teaching Certificate, K-12.

Dance Minor—Other options:

- (1) A minor in dance within a Humanities major in the College of Liberal Arts is also available. This program includes many of the same courses in dance offered in the Dance Concentrate as well as other dance courses particularly suited to the student's needs. It carries the same requirement of performing skill and membership in a dance group and leads to a B.A. degree.
- (2) A teaching minor in Dance has recently been approved by the State Board of Education. It is now available to students in any Secondary Certification curriculum in the College of Education and is highly recommended for art, special education, English, music and speech theater majors.
- (3) A minor in conjunction with other majors may be arranged by special permission.

DRIVER EDUCATION

Three courses in the field of driver education and traffic safety are offered to those University students desiring Michigan teacher certification in this area. The twelve-credit program meets the minimum certification requirements established by the Michigan Department of Education. Students should consult a division adviser.

HEALTH EDUCATION MINOR

A minor in health education for students interested in teaching health on the elementary or secondary school level includes courses in four areas to total thirty-six credits:

	<i>credits</i>
A. Basic Health Sciences	6-10
(Structure and Function of the Human Body in Health and Disease) — Courses in Human Anatomy and Physiology	
B. Health Aspects of Man and His Environment	15-18
(Personal and Community Health; Current Health Issues) — Courses in Health Problems, Drug Education, Nutrition, Human Sexuality, and Mental Health	

C. Behavioral Sciences	6-9
Courses in Psychology and Social Science	
D. Professional Preparation	7-10
(Programs — Methods and Materials — Practicum)	
Courses in Health Education Methods and Programming, and Practicum or Student Teaching	

RECREATION AND PARK SERVICES

This program leads to a Bachelor of Science in Recreation and Park Services. It is constructed upon a pre-professional base with emphasis upon liberal arts, professional preparation, and in-depth field work. This is not a teaching certificate program.

Conditional Major Status — Students have conditional major status within the curriculum until a minimum of eighty credits are completed. Procedures for registering as a conditional major may be obtained from the Recreation and Park Services advisers in the Matthaei Building. During conditional status students should complete as many of the following required general courses as possible.

Anthropology 0210	Psychology 0198
Art History 0100	Sociology 0502
or	Speech 0200
Music History Elective	Speech 0312
Economics 0101	Speech 0520
English 0150	Literature Elective
English 0209	Four Physical Education
Health 0283	Activity Electives
Humanities 0201	Science Elective
Philosophy 0201	Science Elective
Political Science 0101	with Laboratory
and	8 credits in Education
Sociology 0201	chosen in consultation
or	with major adviser
Social Science 0191	
and 0192	

Regular Major Status — Regular major status is applied for through the College of Education, 489 Education Building, when the student has completed eighty credits. The student then completes the remainder of the required courses listed above in addition to the fifty-credit major listed below. Additional courses to complete the 186 credits needed for graduation are chosen as electives in consultation with the student's major adviser. These electives may be used to complete a minor if desired. An over-all h.p.a. of 2.0 with a 2.5 average in all Recreation and Park Services courses must be attained for graduation.

I. Major Core Courses — Required on all Options

Recreation and Park Services 2261	Recreation and Park Services 4263
Recreation and Park Services 2262	Recreation and Park Services 5260
Recreation and Park Services 3260	Recreation and Park Services 5262
Recreation and Park Services 3262	

II. Options — Select One

A. Administration

	<i>credits</i>
R P 4265.....Public Municipal Recreation and Park Administration	4
R P 5261.....Facility Management in Recreation and Parks	4
R P 5263.....Public Relations in Recreation and Park Services	4
R P 6265.....Supervision and Management in Recreation and Park Services	4
Electives chosen in consultation with student's major adviser	12
	28

B. Programming — Six of following courses:

	<i>credits</i>
R P 3261.....Social Recreation Programming	4
R P 3263.....Playground, Playfield, and Neighborhood Park Leadership	4
R P 3264.....Camp Leadership	4
R P 3269.....Arts and Crafts for Recreational Purposes	4
R P 4260.....Music and Dramatics in Recreation Programs	4
R P 4261.....Recreational Sports	4
P E 0320.....Aquatic Leadership	3
P E 3241.....Basic Movement Experiences	3
TED 3321.....Literature for Children	4
Electives chosen in consultation with student's major adviser	4-6
	28

C. Outdoor — At least three of the following courses:

R P 3264.....Camp Leadership	4
R P 5265.....Camp Administration	4
R P 5268.....Wilderness Leadership	3-4
R P 6267.....Outdoor Recreation	4
TED 5567.....Field Course—Natural Science I	4
Electives chosen in consultation with student's major adviser	12-20
	28

D. Therapeutic

R P 5267.....Therapeutic Recreation	4
R P 6266.....Problems in Therapeutic Recreation	4
TED 5403.....Education of Exceptional Children	4
Electives chosen in consultation with student's major adviser	16
	28

GRADUATE DEGREE PROGRAMS

For complete information regarding graduate rules and regulations, students should consult the Graduate Division section of this bulletin, beginning on page 19.

Minimum admission requirements to all Master's degree programs include (1) undergraduate major or minor in the respective field; (2) overall h.p.a. of 3.0 in last two years of undergraduate work for regular admission; 2.5 h.p.a. for probationary status; (3) successful completion of Division's graduate writing proficiency exam.

HEALTH EDUCATION

Requirements for the degree of Master of Education in Health Education include a minimum total of forty-eight credits in course work as follows: (1) thirty-one credits in professional specialization, (2) nine credits in general professional education, and (3) eight credits in cognate work outside of, but complementary to the area of specialization.

Specialization course work:

<i>credits</i>	<i>credits</i>
Health Education 8235 4	Health Education 5232 3
Terminal Project or Thesis 4-12	Health Education 7231 3
Health Education 5231 3	Health Education 7233 3
	Electives 3-11

PHYSICAL EDUCATION

Students pursuing the degree of Master of Education in Physical Education may elect one of the following curriculum options: (1) dance, (2) education theory and practice, (3) theoretical foundations of sport, (4) science of human movement. Degree requirements include a minimum total of forty-eight credits in course work as follows: (1) thirty-one credits in professional specialization, (2) nine credits in general professional education, and (3) eight credits in cognate work outside of but complementary to the area of specialization.

Dance—This curriculum option emphasizes school and college program planning and teaching in dance for students who have an undergraduate major or minor in dance. Applicants who wish to earn a teaching certificate must meet State certification requirements in addition to the forty-eight credits in course work required for the Master's degree. An audition is part of the admissions requirement.

Specialization course work:

<i>credits</i>	<i>credits</i>
Physical Education 8255 4	Dance 6281 3
Terminal Project or Thesis 4-12	Dance 6285 3
	Dance Electives 9-17

A member of the graduate faculty in dance is available to assist students in planning a program in this area.

Education Theory and Practice—This curriculum option emphasizes school and college program planning, administration and teaching in physical education.

Specialization course work:

<i>credits</i>	<i>credits</i>
Physical Education 8255 4	Physical Education 7254 3
Terminal Project or Thesis 4-12	Physical Education 7255 3
Physical Education 6251 4	Physical Education 8241 3
or Physical Education 7251 3	Recommended Electives ... 2-11

Theoretical Foundations of Sport—This program option focuses on the historical, sociological, philosophical and psychological dimensions of sport.

Specialization course work:

<i>credits</i>	<i>credits</i>
Physical Education 8255 4	Physical Education 6257 4
Terminal Project or	Physical Education 7251 3
Thesis 4-12	or
Three of following four areas:	Physical Education 8244 4
Physical Education 5259	Physical Education 8243 4
or	Electives 0-8
Physical Education 6251 4	

Science of Human Movement—Students selecting this program option will concentrate on the biopsychophysical dimensions of human movement.

Specialization course work:

<i>credits</i>	<i>credits</i>
Physical Education 8255 4	Physical Education 8253 3
Terminal Project or	Physical Education 8256 4
Thesis 4-12	Electives 6-14
Physical Education 7258 3	

RECREATION AND PARK SERVICES

Requirements for the degree of Master of Arts in Recreation and Park Services include a minimum total of fifty credits in course work as follows: (1) twelve to twenty-four credits in core course work, (2) eighteen to thirty credits in the area of professional specialization, and (3) eight credits in cognate work outside of the departmental offerings.

A student not possessing an undergraduate degree in a recreation and/or park services curriculum is normally required to complete twelve credits in recreation and park services courses and an acceptable field work experience at the undergraduate level as a prerequisite. Exceptions to this requirement are subject to adviser approval.

Core courses for all majors include:

	<i>credits</i>
RP 8265	4
Terminal Projects or Thesis	4-12
RP 7261*	4
RP 8261	4

*Waiver subject to adviser approval

COURSES OF INSTRUCTION¹

NOTE: Admission to professional curriculum and consent of professional adviser is required for admission to all undergraduate professional courses (below Physical Education 6999).

Dance (DNC)

0101. Contemporary Dance I. Cr. 2.
Basic movement techniques and improvisational experiences in dance; films and concert viewing.

0102. Contemporary Dance II. Cr. 2.
Prereq: DNC 0101 or equiv. Continuation of Dance 0101 on an intermediate level.

0103. Contemporary Dance III. Cr. 2.
Prereq: DNC 0102 or equiv. Continuation of Dance 0102 on a more advanced technical level; principles of dance composition.

0111. International Folk Dances I. Cr. 1.
Introduction to the style and form of folk dances.

0112. International Folk Dances II. Cr. 1.
Prereq: DNC 0111 or equiv. Continuation of Dance 0111 on a more advanced level.

0113. International Folk Dances III. Cr. 1.
Prereq: DNC 0112 or equiv. Continued investigation of folk dances of increasing complexity.

0115. American Square and Round Dances. Cr. 1.
Traditional and contemporary American squares, rounds, contras, and mixers.

0117. Social Dance Forms. Cr. 1.
Dance steps, figures, patterns, style, etiquette; historical sources of ballroom dance since the Renaissance.

0121. Fundamentals of Classic Ballet I. Cr. 1.
Fundamental techniques of classic ballet; emphasis on analysis, proper execution.

0122. Fundamentals of Classic Ballet II. Cr. 1.
Prereq: DNC 0121 or equiv. Continuation of Dance 0121.

0123. Fundamentals of Classic Ballet III. Cr. 1.
Prereq: DNC 0122 or equiv. Continuation of work done in Dance 0121 and 0122.

0131. Perspectives in Dance. Cr. 2.
Required for dance minors; others by consent of instructor. The dance environment; modern, ethnic, and classic concert styles; dance relationships to music, drama and the visual arts; bibliographical resources for study. Field trips.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

0161. Apprentice Dance Group. Cr. 1-3 (Max. 3).

Prereq: DNC 0101 or equiv. Participation in technique, creative, and performing activities.

0201. Technique Laboratory I. Cr. 1-3.

Prereq: DNC 0103 or equiv. Required for dance minors. Participation in dance technique of increasing difficulty and complexity.

0211. Field Work in Dance. Cr. 2-8.

Prereq: consent of adviser and cooperating agency. Open only to undergraduate dance minors. Approved, selected experiences in schools or community agencies.

0221. Improvisation. Cr. 2.

Prereq: DNC 0101 or 0201 or consent of instructor. Kinesthetic, spatial, time and energy awareness developed through laboratory experiences.

0231. History of Dance Since 1800. Cr. 2.

Required for dance minors; others by consent of instructor. Historical development of dance through the nineteenth and twentieth centuries; theatre and concert dance.

0241. Music and Dance Relationships. Cr. 2.

Required for dance minors. Development of movement response to the temporal elements common to both music and dance; dance-related music literature.

0242. Music for Choreography. Cr. 2.

Prereq: DNC 0241 and 0455 or equiv. Exploring modern methods of creating music for choreography geared to include students with minimal musical training. Use of tape, percussion, voice, prepared piano, sound manipulation, and chance theory.

0243. Accompaniment for Dance. Cr. 2.

Prereq: competency in piano and percussion; background in more than one style of music literature. Modern, ballet, jazz and ethnic dance accompaniment; techniques of improvisation, examination of dance and music style and form; survey of music resources.

0244. Fundamentals of Dance Rhythms. Cr. 1.

Basic musical components found in dance; experience in fundamental temporal aspects of movement.

0301. Technique Laboratory II. Cr. 1-3.

Prereq: DNC 0201 or consent of instructor. Required for dance minors. Continuation of Dance 0201.

0311. Ethnic Dance Forms. Cr. 2.

Required for dance minors; others by consent of instructor. Folk and ethnic dance, and dance styles of selected historical periods; their development from the ritual matrix into recreational forms.

0331. Dance Production. Cr. 2.

Required for dance minors. Various types of dance production including an examination of purpose and content; technical considerations such as costumes, makeup, lighting and decor; the management of performance-related matters.

0361. University Dance Workshop I. Cr. 1-3 (Max. 3).

Prereq: consent of instructor. Open only to students with performing experience in dance. Admission by audition.

0401. Technique Laboratory III. Cr. 1-3.

Prereq: DNC 0301 or consent of instructor. Required for dance minors. Continuation of Dance 0301.

0455. Contemporary Dance Choreography I. Cr. 3.

Prereq: DNC 0103 or equiv. Required for dance minors. Construction of dances in group forms using approaches based on music, properties, chance and thematic materials.

0456. Contemporary Dance Choreography II. Cr. 3.

Prereq: DNC 0455 or equiv. Construction of dances; aesthetic considerations and preparation for performance; advanced individual problems.

0457. Choreography and Production. Cr. 4.

Prereq: DNC 0455 and 0456. Open only to undergraduate dance minors. Choreographing a major piece of work from inception to casting, rehearsing and producing in concert.

0501. Workshop in Contemporary Dance. Cr. 1-8

(Max. 8; grad. students, max. 4).

Prereq: consent of instructor. A concentrated period of advanced dance study in technique, composition and repertory, usually with a visiting artist.

0502. Workshop in International Folk Dance. Cr. 1-6

(Max. 6; grad. students, max. 3).

Prereq: DNC 0113 or consent of instructor. Concentrated advanced study in international folk dance, usually with a guest artist-teacher.

0503. Workshop in American Country Dance. Cr. 1-6 (Max. 6).

Prereq: DNC 0115 or consent of instructor and/or adviser. Concentrated advanced study in American Country Dance; usually with guest artist-teacher.

0511. Study in Dance Styles. Cr. 1-6 (Max. 6).

Prereq: DNC 0111 or consent of instructor and/or adviser. Study of a specific dance style; i.e., ethnic, technical, historic period, current trends.

0541. Dance Notation I. Cr. 3.

Background in movement or dance is desirable. Labanotation of dance and movement; survey of other systems.

0542. Dance Notation II. Cr. 3.

Prereq: DNC 0541 or equiv. Continuation of Dance 0541.

0561. University Dance Workshop II. Cr. 1-3 (Max. 3).

Prereq: DNC 0361 or consent of instructor. Continuation of Dance 0361.

0571. (SPH 0561) Form and Styles of Theatre Jazz Dance. Cr. 1.

Prereq: consent of instructor. Techniques and styles of jazz dance as a foundation in the dance idiom.

0580. Repertory. Cr. 1-4.

Prereq: DNC 0301 or equiv.; audition or consent of instructor. Learning, for performance, of standard modern repertory, or for dances previously choreographed by instructor.

0590. Independent Study in Dance. Cr. 1-4.

Prereq: minor in dance and consent of instructor. Independent work in dance under faculty guidance.

Professional Education Courses

3281. Creative Dance for Children (TED 3081). (1,2). Cr. 2.

Required for dance minors. Varied approaches to creative dance experiences for children stressing the development of aesthetic and kinesthetic awareness.

3283. (P E 3245) Theory and Practice of Elementary Dance Forms. Cr. 3.

Prereq: P E 3241 or equiv. Instructional materials in dance movement exploration, rhythmic skills, traditional dance steps, and in the recreational forms of folk dance with application to the school dance program.

4281. Theory and Practice of Contemporary Dance. Cr. 3.

Prereq: DNC 0101 or equiv. Analysis of techniques and development of instructional materials in contemporary dance, including appropriate movement and rhythmic techniques and beginning dance composition.

5244. Dance for Elementary Music Teachers. Cr. 3.

Exploration of the common basis for music and dance and the provision of a range of movement experiences for the music teacher. The philosophy of Orff Schulwerk which stresses the elemental relationship between language, music and movement.

5281. Dance for Elementary School Teachers (TED 5081). Cr. 3.

Prereq: directed or regular teaching. Developmental and creative dance experiences related to the elementary school curriculum with emphasis on cognitive and aesthetic concepts.

5282. Creative Dance Movement for the Pre-School Child (TED 5082). Cr. 3.

Creative dance activities; manipulative, musical, imaginative and kinesthetic approaches to movement.

5283. Dance in the Recreational Setting (R P 6263). Cr. 3.

Equips the student with a knowledge of the various dance forms and the skills necessary to design a program of dance activities in a recreational setting.

5311. Dance and Other Arts in Folk Culture (TED 5811). Cr. 4-12 (Max. 12).

Prereq: DNC 0111 or consent of instructor. Basic art forms and skills indigenous to various folk cultures.

6281. Problems in Teaching Creative Dance. Cr. 3.

The development of creativity in dance teaching in the presenting of dance techniques, movement and rhythmic problems, improvisational catalyst, short dance studies.

6283. Historical Foundations of Dance. Cr. 3.

Evolution of dance from primitive times to early twentieth century art dance. Historical analysis of folk rituals, court and theatrical dance. Social influences on dance as an art.

6284. Blacks in American Dance. Cr. 3.

Prereq: DNC 0231 or equiv.; consent of instructor for undergraduates. Historical examination of the forms and styles of dance created and performed by blacks in the United States since 1700.

6285. Seminar in Dance Techniques. (0,6). Cr. 3.

Prereq: consent of instructor. Investigation and practice of the techniques of classical ballet and modern dance; their similarities and differences; construction of technical sequences for specific body disciplinary needs.

6287. Dance Performance and Production. (2,2). Cr. 3.

Consideration of details of various types of dance production and performance; purpose, content, technical aspects, organization and management.

7285. Laboratory in Choreography. (1,4-6). Cr. 3.

Prereq: undergraduate major or minor in dance or consent of instructor. Choreography of solo, small and large group compositions for critical evaluation.

7286. Directed Study in Dance. Cr. 1-4 (Max. 4).

Prereq: consent of adviser and graduate officer. Open only to dance concentrate students.

7287. Dance Ethnology. Cr. 3.

The study of the functional significance of communal dance in society; its religious symbolism and social purpose; its function as a source in the development of the dance-art of a culture.

Driver Education (D E)

Professional Education Courses

5273. Teaching Driver Education and Traffic Safety (TED 5094). (3,1). Cr. 4.

Prereq: valid Michigan driver's license. Teacher preparation to organize and teach driver education and traffic safety.

5274. Problems in Driver Education and Traffic Safety (TED 5074). (3,1). Cr. 4.

Prereq: D E 5273. Issues and concerns in professional preparation to meet traffic safety needs of schools and communities.

5275. Seminar in Driver Education and Traffic Safety (TED 5075). (3,1). Cr. 4.

Prereq: D E 5274. Behavioral, administrative and professional aspects of the teaching role in driver and traffic safety education.

Health Education (H E)

Professional Education Courses

3234. Health Care of the Pre-School Child. Cr. 4.

Prereq: TBF 3731 or consent of adviser. Conditions and practices which protect and promote healthy growth in the young child; such factors as environmental sanitation, preventive health practices, care in case of illness or injury, meeting emotional health needs, and early sex education.

3235. Health and the Aging Process. Cr. 4.

Dynamics of later life and the aging process with specific emphasis on health. Physiological, behavioral, and environmental dimensions of the aging process. Designed for preprofessionals and paraprofessionals in the field of services to the aging.

3236. Individual Problems in Health Education. Cr. 1-4 (Max. 4).

Prereq: professional courses in health education or consent of adviser. Solving some specific problem under guidance of the divisional staff.

4230. Health of the School Child (TED 4030). Cr. 3.

Prereq: HEA 0281 or consent of instructor. Health status and problems of youth at various stages of growth and development. Teacher's role in health protection and promotion.

4231. The School Health Program. Cr. 3.

Prereq: H E 4230. Principles underlying the organization of school health programs. Teacher's responsibility in healthful school living and health services.

4233. Methods in Health Instruction. Cr. 3.

Prereq: H E 4231. Principles and techniques in teaching health at elementary, junior and senior high school levels.

5230. Role of the Teacher in School Health (TED 5030). Cr. 3.

Not open to professional students in health and physical education. Role of the teacher in meeting school and community health problems of the school population. Environmental health factors, teacher appraisal of pupil health, health services, direct and integrated health instruction.

5231. Curriculum in Health Instruction I. Cr. 3.

Prereq: H E 4233 or consent of instructor. Development of the skills needed for implementation of health instructional performance objectives in the K-6 classroom; emotional and mental health, family living, growth and development, nutrition and substance use and abuse.

5232. Curriculum in Health Instruction II. Cr. 3.

Prereq: H E 5231 or consent of instructor. Continuation of Health Education 5231 with emphasis on development of skills necessary to the K-6 elementary teacher for health instructional performance objectives. Community health, consumer health, disease prevention and control, personal health practices and safety.

5233. Health Problems of Children and Youth (TED 5033). Cr. 3.

Recent authoritative information on diseases and defects of school age children. Implications for the school program in health. Lecturers from medicine and public health when possible.

5235. Workshop in School Health. Cr. 3-12 (Max. 12).

Prereq: teaching experience. Lectures, discussion groups, individual counseling. Structured around problems of students in course. Plans for improving health programs in schools represented by students in course.

6. Methods and Materials of Instruction — Safety Education (TED 5093). Cr. 3.

Activities of safety education as applied to home, public, traffic, boating, and fire prevention. Materials, instructional methods, and field trips.

5238. The Drug Experience: Awareness for Decision Making. Cr. 4.

Prereq: senior or graduate standing. Factual information about drugs and their relation to society; medical and pharmaceutical aspects of drugs; adolescent drug abuse, communication skills and self-awareness, drug programs; school community problems, and community service programs.

6233. History and Philosophy of Health Education. Cr. 3.

Prereq: H E 4230, 4231, 4233, or equiv. Major trends in health education in the United States from 1850 to the present; social and scientific factors significant in the development of school health education.

7231. Current Issues in Health Instruction. Cr. 3.

Prereq: H E 5231 or consent of instructor. Recent research in identification of needs, problems, curriculum construction, new methodological approaches and evaluative techniques.

7233. Administration of School Health Programs. Cr. 3.

Prereq: teaching experience. Role of school administrators in coordinating the school health program with the home, health department, and other community health agencies. Leadership responsibilities of the administrator as related to staff and Board of Education.

7236. Directed Study in Health Education. Cr. 1-4 (Max. 4).

Prereq: consent of adviser and graduate officer.

7239. Terminal Master's Seminar and Essay or Project. Cr. 4.

Prereq: consent of adviser. Development and review of essay outlines. Graduate students present proposed studies for analysis by faculty and students in seminar.

8235. (P E 8255) Critical Inquiry in Dance, Health Education, Physical Education and Recreation and Park Services (R P 8265). Cr. 4.

Empirical, philosophical and historical inquiry in dance, health education, physical education and recreation and park services. Examine the theory of measurement with respect to above parameters. Emphasis placed on ability to critically distinguish between these areas and the mode of inquiry.

8239. Master's Thesis Research and Seminar. Cr. 2-12 (12 required).

Prereq: consent of adviser.

Health (HEA)

0281. Dynamics of Personal Health. Cr. 3.

Critical health issues relevant to today's college student; application to his personal and family needs.

0282. Dynamics of Environmental Health. Cr. 3.

Ecological factors associated with human health; environmental pollution, over-population, world health problems and organized community efforts to deal with them. Field trips.

0283. First Aid. Cr. 3.

Theory and practice. Students can qualify for standard national certification examination in first aid.

0386. Individual Problems in Health. Cr. 1-4 (Max. 4).

Prereq: HEA 0281 and 0282 and consent of instructor. Solving a specific problem under the guidance of the divisional staff.

0387. Physiology of Exercise. Cr. 3.

Prereq: 9 credits in human anatomy and physiology. Human functions and their response to physical stress.

0388. Kinesiology. Cr. 3.

Prereq: 9 credits in human anatomy and physiology. Application of knowledge of human physical structure and function in the analysis and appreciation of human movement; theory and practice of human movement analytic techniques.

Professional Education Courses

5234. Prevention and Care of Athletic Injuries. Cr. 3-4.

Prereq: HEA 0288, and 0387 or equiv. The training room, its purpose, equipment, and management. Principles and techniques of treating sprains, knee, muscle and other injuries of the locomotion system and of the skin. Application of heat, light, diathermy, water; massage and special exercises. Bandaging, first aid procedure; training table; observation and directed experiences.

6234. Human Physical Growth. Cr. 3.

Prereq: HEA 0288, 0289 or equiv. Meaning of growth and development and their measurement; mean and differential growth patterns; theoretical curves; constitutional types and their relation to health, disease and personality; effect of hereditary and environmental factors on growth; minimal and optimal requirements for good growth.

6235. The Nation's Health. Cr. 3.

Prereq: HEA 0281, 0282 or equiv. Survey of the health status; factors aiding and deterring improvement of health conditions; technological and economic advances; ecology of human disease. Analysis of provisions and newest proposals for meeting basic health needs including medical care, insurance, health resources, and medical ethics.

7234. Bases for Physiological Hygiene. Cr. 3.

Prereq: courses in chemistry, physiology, or biology. Nature of health; laws of nature applying to the development and maintenance of health states; essentials for good health; internal, hereditary, somatic and sociological factors influencing health states. Principles of prevention and their application.

Physical Education (P E)

Basic Instruction

0106. Individual Physical Education. Cr. 1-4 (Max. 4).

Prereq: consent of divisional director. For students with a B or C health examination rating. Individualized activities under supervision.

Aquatics

0110. Elementary Swimming. Cr. 1.

Fundamental skills and knowledge in aquatics for beginners.

0111. Intermediate Swimming. Cr. 1.

Prereq: elementary swimming test. Theory and practice of basic swimming strokes and beginning diving techniques.

0120. Lifesaving. Cr. 2.

Prereq: advanced swimmer. Lifesaving and water safety procedures studied and practiced with successful course completion leading to lifesaving certification.

0121. Diving. Cr. 1.

Prereq: P E 0111 or intermediate swimming test. Analysis and practice of diving techniques.

0210. Synchronized Swimming. Cr. 1.

Practical and theoretical techniques of synchronized and rhythmic swimming. Basic and advanced stunts and formations, adaptation of swimming strokes, selection of suitable music and appropriate costume, demonstration of the resultant skill in a culminating performance.

0211. Intermediate Synchronized Swimming. Cr. 1.

Prereq: advanced swimming ability, P E 0210, or consent of instructor. Continuation of Physical Education 0210; more advanced work in various skills areas.

0212. Advanced Synchronized Swimming. Cr. 1.

Prereq: advanced swimming ability and P E 0211 or consent of instructor. Improving personal skills and developing routines and coaching abilities.

0220. Scuba Diving. Cr. 2.

Prereq: P E 0120 and medical approval by University Health Service. Theory and practice of the proper use of self-contained underwater breathing apparatus.

0320. Aquatic Leadership. Cr. 3.

Prereq: P E 0120. Instructional methods and techniques in aquatics, water safety and survival; swimming program development; pool and waterfront administration and management. American Red Cross Water Safety Instructor's Certificate can be achieved.

Individual Sports

0125. Badminton. Cr. 1.

Analysis and practice of basic strokes, singles and doubles play, strategy, rule interpretation.

0126. Tennis. Cr. 1.

Analysis and practice of basic strokes, singles and doubles play, strategy, rule interpretation.

0127. Paddleball. Cr. 1.

Prereq: current health card. Basic skills and technique; history, rules, equipment and game courtesy.

0128. Squash. Cr. 1.

Analysis and practice of basic strokes, strategy, rule interpretation

0129. Skiing. Cr. 1.

Analysis and practice of basic skills and techniques, safety, selection, purchase and care of equipment. Taught at local ski slope.

0130. Conditioning for Snow Skiing. Cr. 1.

Prereq: beginning skills of snow skiing. Analysis and practice of basic skills and techniques, prescribed conditioning activities and simulated skiing.

0131. Alpinism-Rock Climbing. Cr. 1.

Prereq: good physical condition. Introduction to the basic principles and techniques of technical rock climbing. Field trips.

0134. Handball. Cr. 1.

Analysis and practice of skills, singles and doubles play, strategy, rule interpretation.

0135. Archery. Cr. 1.

Analysis and practice of skills, information on scoring, rules, tournament competition.

0136. Bowling. Cr. 1.

Analysis and practice of skills. Information on scoring procedures, rules, tournament play.

0137. Golf. Cr. 1.

Analysis and practice of fundamentals focused on development of correct form in the use of different clubs.

0138. Billiards-Pool. Cr. 1.

Basic skills and technique; history, rules, equipment and game courtesy.

0226. Advanced Tennis. Cr. 1.

Prereq: P E 0126 or consent of instructor.

0227. Advanced Racquetball. Cr. 1.

Prereq: consent of instructor. Advanced skills and technique; singles and doubles game strategy; optional competition.

0229. Advanced Skiing. Cr. 1.

Prereq: P E 0129 or equiv. Taught at local ski slopes.

0233. Advanced Squash. Cr. 1.

Prereq: consent of instructor. Advanced course in squash racquets; instruction in and practice of skills and strategies needed for tournament competition; rules and officiating procedures.

0234. Advanced Handball. Cr. 1.

Prereq: consent of instructor. Review of basic skills and understanding of handball with concentration on advanced techniques.

0236. Advanced Bowling. Cr. 1.

Prereq: P E 0136; men's average, at least 150; women's average, at least 130. Complete exposition of advanced bowling technique; physics and physiology applied to bowling. Systems to develop strike lines and to convert splits and spares.

0238. Pocket Billiards. Cr. 1.

Prereq: P E 0138. Continuation of Physical Education 0138 with introduction of 14.1 pocket billiards.

Advanced Pocket Billiards. Cr. 1.

Prereq: P E 0138 and 0238. Advanced skills, technique and play.

Developmental Activities

0141. Trimnastics. Cr. 1.

Organized exercise activities designed for conditioning and figure improvement. Information on weight control and developing personal exercise programs.

0142. Stunts and Tumbling. Cr. 1.

Analysis and practice of elementary techniques in mat tumbling, trampoline, vaulting, hand-balancing, floor calisthenics.

0143. Men's Gymnastic Events. Cr. 1.

Prereq: P E 0142 or consent of instructor. Analysis and practice of basic gymnastic techniques and events: floor exercise and apparatus.

0144. Women's Gymnastic Events. Cr. 1.

Prereq: P E 0142 or consent of instructor. Analysis and practice of basic gymnastic techniques and events: floor exercise and apparatus.

0146. Aerobics: Cardio-Respiratory Conditioning. Cr. 1.

Carefully controlled, personalized program activities designed to maintain or improve the level of cardiorespiratory conditioning of the participant; prescription for future levels of activity from the class experience.

0147. Weightlifting and Training. Cr. 1.

Analysis and practice of approved lifting techniques and use of weight training for conditioning purposes.

0243. Advanced Gymnastic Apparatus: Men. Cr. 1.

Prereq: P E 0143 or consent of instructor. Analysis and practice of advanced techniques involving the use of apparatus included in competitive gymnastics programs.

0244. Advanced Gymnastic Apparatus: Women. Cr. 1.

Prereq: P E 0144 or consent of instructor. Analysis and practice of advanced techniques involving the use of apparatus included in competitive gymnastic programs.

**0356. Individualized Skills Development Laboratory. Cr. 1-4.
(Max. 4).**

Prereq: written consent of coordinator. Physical education credit for significant development and improvement of skills and associated knowledge in activity areas beyond the purview of the general education curriculum of the Division.

Combatives

0151. Personal Defense. Cr. 1.

Analysis and practice of a variety of defense skills for use in warding off attacks on one's person.

0153. Wrestling. Cr. 1.

Analysis and practice of fundamental skills, rules, strategy, conduct of amateur matches.

0154. Beginning Judo. Cr. 1.

Analysis and practice of fundamental skills; strategy and philosophy of judo as a method of personal defense and competitive sport.

0155. Beginning Karate. Cr. 1.

Analysis and practice of fundamental skills; strategy and philosophy of karate as a method of personal defense and competitive sport.

0156. Beginning Aikido. Cr. 1.

Analysis and practice of fundamental skills; strategy and philosophy of aikido as a method of personal defense.

0157. Fencing. Cr. 1.

Analysis and practice of skills, rules, strategy, conduct of competitive meets.

0251. Intermediate Personal Defense. Cr. 1.

Prereq: P E 0151 or consent of instructor. Personal defense theory; advanced self-defense techniques with an emphasis on avoidance rather than confrontation.

0257. Advanced Fencing. Cr. 1.

Prereq: P E 0157, or consent of instructor.

0351. Advanced Personal Defense. Cr. 1.

Prereq: P E 0251, judo, aikido, or consent of instructor. Personal defense theory; advanced self-defense techniques with an emphasis on avoidance rather than confrontation.

0179. Power Volleyball: Men. Cr. 1.

Analysis and practice of skills, team play, strategy, rule interpretation.

0180. Basketball: Men. Cr. 1.

Analysis and practice of skills, team play, strategy, rule interpretation.

0252. Baseball Officiating. Cr. 2.

Prereq: playing experience in baseball. Competence in umpiring baseball; skills, rules, personal preparation, umpiring in schools and colleges; organizations of umpires; supplementary officials; opportunity for certification.

0253. Basketball Officiating. Cr. 2.

Prereq: playing experience in basketball. Competence in officiating basketball; skills, mechanics, signals, rules and interpretations, personal preparation, officials associations, supplementary officials; opportunity for certification.

0254. Football Officiating. Cr. 2.

Prereq: playing experience in football. Competence in officiating football; skills, mechanics, signals, rules and interpretation, personal preparation, officials associations, supplementary officials; opportunity for certification.

Team Sports

0171. Field Hockey. Cr. 1.

Analysis and practice of skills, team play, strategy, rule interpretation.

0172. Power Volleyball: Women. Cr. 1.

Analysis and practice of skills, team play, strategy, rule interpretation.

0173. Soccer-Speedball: Women. Cr. 1.

Analysis and practice of skills, team play, strategy, rule interpretation.

0174. Basketball: Women. Cr. 1.

Analysis and practice of skills, team play, strategy, rule interpretation.

0175. Curling. Cr. 1.

Prereq: current health card. Basic skills and techniques; rules, history and equipment.

0176. Soccer: Men. Cr. 1.

Analysis and practice of skills, team play, strategy, rule interpretation.

0177. Touch Football. Cr. 1.

Analysis and participation in the skills and game patterns of touch football with special emphasis on team play and rule interpretation.

0178. Field Lacrosse. Cr. 1.

Skills, knowledge of rules and strategies of playing field lacrosse; history and social significance of the activity.

Professional Education Courses

1241. The Study of Human Movement. Cr. 3.

Open to physical education majors only. Experiences in major areas of the study of movement; i.e., philosophy and aesthetics of movement, science of movement, evaluation of movement and movement professions.

2241. Theory and Practice of Individual Sports—Women. (1,4). Cr. 3.

Prereq: P E 0126 and 0137 or equiv. Analysis of skills and participation in badminton, golf, and tennis. Instructional methods and teaching aids applied to girls' and women's programs.

2242. Theory and Practice of Individual Sports—Men. (1,4). Cr. 3.

Prereq: P E 0126 and 0137. Analysis and participation in individual and dual sports. Study of instructional methods and teaching aids applied to golf, tennis, badminton, and bowling.

2243. Instructional Methods in Gymnastics—Women. Cr. 3.

Prereq: P E 0142 or P E 0144 or consent of instructor. Open only to physical education majors. Analysis of skills and instructional methods in women's gymnastics; conditioning, progressions, safety, class organization, and coaching techniques included.

2244. Theory and Practice of Selected Activities—Men. (1,4). Cr. 3.

Prereq: P E 0145 and 0153. Analysis and practice of combat and developmental activities in physical education. Study of instructional methods and teaching aids applied to wrestling, gymnastics, weight training, and conditioning activities.

2245. Theory and Practice of Team Sports I — Women.
(1,4). Cr. 3.

Prereq: P E 0171. Analysis of skills and participation in soccer, speedball, and field hockey. Instructional methods and teaching aids applied to girls' and women's programs.

2246. Theory and Practice of Team Sports II — Women.
(1,4). Cr. 3.

Prereq: P E 0172 and 0174. Analysis of skills and participation in volleyball and basketball. Instructional methods and teaching aids applied to girls' and women's programs.

2247. Theory and Practice of Basketball and Football.
(1,4). Cr. 3.

Analysis and participation in the skills and game patterns of basketball and football. Study of instructional methods and teaching aids applied.

2248. Theory and Practice of Team Sports III — Women.
(1,4). Cr. 3.

Analysis of skills and participation in softball and track and field. Instructional methods and teaching aids applied to girls' and women's programs.

2249. Theory and Practice of Baseball and Volleyball. (1,4). Cr. 3.

Prereq: P E 0179. Analysis and practice of fundamental skills and techniques of baseball and volleyball. Study of instructional methods and teaching aids applied.

2250. Theory and Practice of Soccer and Track. (1,4). Cr. 3.

Prereq: P E 0176. Analysis and practice of fundamental skills and techniques of soccer and track. Instructional methods and teaching aids.

2252. Officiating Baseball. (1,2). Cr. 2.

Prereq: playing experience in baseball. Development of competence in umpiring baseball; skills, rules, personal preparation, umpiring in schools and colleges; organizations of umpires; supplementary officials; opportunity for certification.

2253. Officiating Basketball. (1,2). Cr. 2.

Prereq: playing experience in basketball. Development of competence in officiating basketball; skills, mechanics, signals, rules and interpretations, personal preparation, officials associations, supplementary officials; opportunity for certification.

2254. Officiating Football. (1,2). Cr. 2.

Prereq: playing experience in football. Development of competence in officiating football; skills, mechanics, signals, rules and interpretations, personal preparation, officials associations, supplementary officials; opportunity for certification.

3241. Basic Movement Experiences. Cr. 3.

Prereq: junior or senior standing. Problem-solving approach to helping the child understand and control the many ways his body moves. Designed to help teachers analyze and use basic movement as a foundation for teaching sports, dance and gymnastic skills.

2. Student Teaching and Seminar. Cr. 3-8.

Prereq: admission to student teaching. Offered for S and U grades

3243. Theory and Practice of Elementary Physical Education Activities. Cr. 3.

Prereq: P E 3241. Primary and intermediate grade activities for children. Emphasis on the exploratory and problem-solving approach to learning. Use of basic movement, games, relays, stunts, self-testing, and physical fitness activities.

3244. Theory and Practice of Aquatics. (1,4). Cr. 3.

Prereq: P E 0120 or life-saving certificate. Instructional methods and techniques in aquatics, water safety and survival; swimming program development; pool and waterfront administration and management; leads to water safety instructor's certificate.

3245. Theory and Practice of Elementary Dance Forms
(DNC 3283). Cr. 3.

Prereq: P E 3241 or equiv. Instructional materials in dance movement exploration, rhythmic skills, traditional dance steps, and in the recreational forms of folk dance with application to the school dance program.

3250. Educational Methods in Physical Education. Cr. 4.

Basic approaches to teaching and learning in physical education. Curriculum development, instructional planning, teaching aids, materials for school programs.

3256. Individual Problems in Physical Education.
Cr. 1-4 (Max. 4).

Prereq: consent of adviser. Solving a specific problem under guidance of the divisional staff.

4242. Student Teaching and Seminar. Cr. 3-8.

Prereq: P E 3242. Offered for S and U grades only.

4244. Officiating Women's Team Sports. Cr. 1-2.

Prereq: consent of instructor. Practical and theoretical techniques of officiating hockey and basketball leading to ratings given by U. S. Field Hockey Association and D.G.W.S. Officiating Services Area. Officiating experiences at various age and skill levels.

4251. Coaching Methods in Swimming. Cr. 2.

Prereq: P E 3244. Coaching of competitive swimming and diving: team training and practice, management and officiating of meets, coaching methods for specific events.

4253. Coaching Women's Team Sports. Cr. 2.

Prereq: P E 2245, 2246 or consent of instructor. Practical and theoretical techniques of hockey and basketball. Teaching advanced skills and strategies, methods of team selection and management, planning practices and schedules.

4254. Coaching Women's Individual Sports. Cr. 2.

Prereq: P E 2241 or consent of instructor. Techniques, advanced tactics and strategy for the skilled player in selected individual sports.

4255. Coaching Methods in Baseball. Cr. 2.

Team preparation for baseball competition. Practice methods, game strategy, rule interpretation, advanced techniques of competitive play studied.

4257. Coaching Methods in Basketball. Cr. 2.

Offensive and defensive patterns in basketball. Focus on game strategy and team preparation. Practice procedures, scouting approaches, training methods.

4258. Coaching Methods in Football. Cr. 2.

Offensive and defensive patterns in football. Focus on game strategy and team preparation. Practice drills, scouting approaches, training methods.

4259. Coaching Methods in Track and Field. Cr. 2.

Basic approaches to preparation of competitors in specific track and field events. Scientific training methods, planning practices and meets, advanced techniques of performance.

5240. Introduction to Adaptive Physical Education. Cr. 4.

Prereq: basic courses in anatomy, physiology, and kinesiology. History, objectives, program scope and beginning field work experience.

5241. Adaptive Physical Education: Methods and Materials. Cr. 4.

Prereq: P E 5240 or consent of instructor. Basic approaches to teaching and learning in adaptive physical education. Curriculum development, instructional planning, teaching aids, materials for school and agency programs.

5242. Adapted Sports and Recreation for the Handicapped. Cr. 4.

Prereq: P E 5240 or consent of instructor. Programming, instructional methods and coaching techniques in recreational and competitive sport for the handicapped individual.

5250. Evaluation and Measurement in Health and Physical Education. Cr. 4.

Prereq: senior standing. Elementary statistical methods and evaluative techniques applied to health and physical education. Test construction and standard measurement approaches.

5253. Administration of Physical Education. Cr. 4.

Analysis of administrative responsibility in physical education: policy, development and procedural patterns in staff relations, program organization, financial management.

5254. Principles of Physical Education. Cr. 4.

Prereq: student teaching. Application of philosophical methods of analysis to non-empirical questions and problems of specific concern to the physical educator. Consideration of purpose, meaning, rules, principles and change.

5255. Movement Education for Children (TFD 5055). Cr. 4.

Designed for kindergarten and elementary classroom teachers. Principles, values, theory, and content of movement education for children. Problem-solving approach to movement education as a foundation for specialized experiences in game patterns, stunts, self-testing activities, and creative dance movement.

5256. Honors Projects. Cr. 2-4 (Max. 4).

Prereq: senior standing and consent of adviser. Open to students of high scholastic standing for individual study and advanced seminar work.

5258. History of American Physical Education. Cr. 3.

Prereq: senior standing or consent of instructor. The growth and development of physical education in American education.

5259. Sport in American Life: Colonial to Present. Cr. 4.

The role of sport in socio-cultural history of the United States.

6245. Practicum in Movement Education. (2,2). Cr. 3.

Prereq: elementary school physical education teaching experience. No credit after Physical Education 3241. A problem-solving approach to teaching the basic movement skills of games, dance, gymnastics in an elementary school physical education program.

6251. History of Physical Education. Cr. 4.

The examination of physical education as a significant cultural form from early civilizations to the present.

6254. Workshop in Physical Education and Athletics.

Cr. 2-8 (Max. 12).

Teachers, school administrators and consultants working cooperatively on current problems in physical education and athletics.

6255. Organization and Administration of Athletics. Cr. 3.

Prereq: undergraduate major in physical and health education. Problems related to the administrative duties of athletic directors including equipment, scheduling, team morale, trips, public relations.

6257. Psychology of Sport. Cr. 4.

Prereq: introductory psychology course. Motivation, arousal, personality, theories of learning related to the sport performance.

7251. Foundations of Physical Education. Cr. 3.

Analysis of the role of physical education and its relationship to human well-being. Meaning and influence of motor movement in human existence.

7253. Movement Aesthetics. Cr. 3.

Human movement as it relates to aesthetic experience. Design and expression in varied forms of physical activity. Pertinent literature in the field.

7254. Supervision and Administration of Physical Education. Cr. 3.

Policies and procedures in planning school programs of physical education. Organizational patterns and problems at community and educational levels. National and state responsibilities.

7255. Curriculum Planning in Physical Education. Cr. 3.

Principles of curriculum design and their application to programs of physical education; current questions and issues in curriculum research.

7256. Directed Study in Physical Education. Cr. 1-4 (Max. 4).

Prereq: consent of adviser and graduate officer.

7258. Mechanical Analysis of Motor Activity. Cr. 3.

Prereq: basic course in kinesiology. Principles of the analysis of human movement. Application of the laws of mechanics to motor activity. Scientific methods of analyzing human motion.

7259. Terminal Master's Seminar and Essay or Project. Cr. 4.

Prereq: consent of adviser. Development and review of essay outlines. Graduate students present proposed studies for analysis by faculty and students in seminar.

8241. Critical Issues in Physical Education. Cr. 3.

Prereq: undergrad. major in health or physical education. Examination of current concerns in physical education. Analysis of philosophical bases of these issues, significance of their meaning and implications for the profession.

8243. Sport in Society. Cr. 4.

Prereq: introductory sociology course. The investigation of sport as a significant social institution. Comparative analysis of the place of sport in selected societal settings.

8244. Dimensions of the Sport Experience. Cr. 4.

The analysis of sport as a meaningful social form in which the experience of participation facilitates the realization, development, clarification and understanding of one's own existence.

8251. Rehabilitation Through Physical Education. Cr. 3.

Prereq: P E 5240 or consent of instructor. Uses of exercise for rehabilitative purposes. Movement as a therapeutic medium for physical and emotional disability.

8253. Motor Learning. Cr. 3.

Prereq: P E 8255. Principles of motor learning. Review of research findings in the physical performance field. Application to the teaching and learning of motor skills.

8255. Critical Inquiry in Dance, Health Education, Physical Education and Recreation and Park Services (R P 8265) (H E 8235). Cr. 4.

Empirical, philosophical and historical inquiry in dance, health education, physical education and recreation and park services. Theory of measurement with respect to above parameters. Emphasis on ability to critically distinguish between these areas and the mode of inquiry.

8256. Experimental Physiology. Cr. 4.

Prereq: basic courses in human anatomy and physiology, exercise physiology and P E 8255. Research methods. Development of experimental designs and controls in physiological research.

8258. Seminar in Professional Literature. Cr. 2-6.

Prereq: three graduate courses in physical education. Examination of the literature on specific topics within the physical education profession.

8259. Master's Thesis Research and Seminar. Cr. 2-12 (12 required).

Prereq: consent of adviser.

Recreation and Park Services (R P)

Professional Education Courses

2261. Nature and Scope of Recreation and Park Services. Cr. 1. Historical developments; survey of professional opportunities and educational requirements.

2262. Field Work I. Cr. 3.

Prereq: one month advance consent of instructor. Supervised observation and limited volunteer leadership in an assigned recreation-park agency.

60. Principles of Recreation Leadership. Cr. 4.

Theories and dynamics of individual and group leadership in recreation services; techniques for working with children, adults, and special groups (handicapped, aging).

3261. Social Recreation Programming. Cr. 4.

Theory, techniques and practice in planning and conducting social activities for children and adults with emphasis on social development and the integration of the individual into the group. Field programming and leadership assignments.

3262. Field Work II. Cr. 3.

Prereq: R P 2262 and one month advance consent of instructor. Open only to majors. Supervised volunteer leadership in an assigned recreation-park agency where the type of programming differs from the student's previous experience.

3263. Playground, Playfield, and Neighborhood Park Leadership. Cr. 4.

Types and functions of playgrounds, playfields and neighborhood parks; leadership responsibilities for program, control, safety and maintenance; trends in facility and equipment design and supplies. Playground games, arts and crafts, story telling.

3264. Camp Leadership. Cr. 4.

Values and objectives of organized camps; understanding campers; program planning, staff responsibilities, records and evaluation; safety; campcraft skills. Opportunity to earn A.C.A. certification. Weekend trip required.

3269. Arts and Crafts for Recreational Purposes. Cr. 4.

Exploration of arts and crafts as a part of the total recreation program. Supplies, techniques, leadership.

4260. Music and Dramatics in Recreation Programs. Cr. 4.

Exploration of music and dramatics as part of the total recreation program. Supplies, techniques of leadership, practical experience.

4261. Recreational Sports. Cr. 4.

General concept of the rules and procedures of various recreational sports and activities. Ordering equipment, setting up and maintaining playing areas, organizing tournaments, and supervising officials.

4262. Terminal Internship and Seminar. Cr. 8-16 (16 required).

Prereq: one month advance consent of adviser. Open only to recreation and park services majors. Full-time placement in a selected public, private or specialized agency (hospital, industry), to meet the student's professional goal. Joint supervision by agency and instructor; concurrent on-campus seminar considering problems related to internship. Includes on-the-job rotation among all departmental operations.

4263. Philosophy of Recreation and Park Services. Cr. 4.

Open only to recreation and park services majors. Nature of the recreative experience and its importance to the individual. Influence of leisure on the individual and society; importance of education for leisure; development of the profession — The National Recreation and Park Association.

4265. Public Municipal Recreation and Park Administration. Cr. 4.

Prereq: 12 credits in recreation and park services or consent of instructor. Administration of public recreation and park systems at municipal district, county, regional, state and federal levels, with emphasis on the municipal. Departmental structures; budget and finance; legal considerations; personnel training and evaluation; records and reports; public relations.

5260. Principles of Recreation Programming. Cr. 4.

Open only to recreation and park services majors. Objectives, trends and patterns. Techniques for achieving balanced services and for special groups; emphasis on metropolitan areas.

5261. Facility Management in Recreation and Parks. Cr. 4.

Land and building maintenance programs; equipment and supplies; control and records; maintenance personnel training; field inspections.

5262. Advanced Field Work in Recreation and Park Services.

Cr. 1-8 (Max. 24).

Prereq: one month advance consent of instructor. Specialized leadership in an assigned recreation-park setting.

5263. Public Relations in Recreation and Park Services. Cr. 4.

Prereq: R P 4263 or consent of instructor. Various means for communication among recreation agencies and with the public; techniques of public relations; motivating program participation; audio-visual and graphics workshop.

5264. Leadership in Recreation Services for the Aging. Cr. 4.

Prereq: R P 3260 and 4263, or consent of instructor. Leadership techniques for personnel within public and private recreation and park agencies who work with the able and mildly disabled aged. Methods in communicating program availability and stimulating participation.

5265. Camp Administration. Cr. 4.

Values and objectives of organized camps; site layouts, facilities; direction, budget, records, insurance, sanitation and safety, program construction, camper and staff recruitment; staff training; parent-camp relations.

5266. Independent Study. Cr. 1-2 (Max. 12).

Prereq: 12 credits in recreation and park services and consent of instructor. Supervised research, applied or action, in the student's area of concentration or interest.

5267. Therapeutic Recreation. Cr. 4.

Introduction, scope and rationale of the area. Examination of various types of persons needing special recreation programs. Programming for individuals and groups.

5268. Wilderness Leadership. Cr. 3-4.

Prereq: basic course in first aid. Equipment, skills, preparation for trips. Leadership of groups in wilderness settings.

5269. Travel Camping. Cr. 1-4 (Max. 12).

Maximum hours limited to outdoor recreation option. Graduate students: S and U grades only. A supervised travel course, involving camping within and outside the state, designed to increase the student's awareness of the total outdoor recreation concept, various related facilities and services.

6261. (GEG 0623) Land and Leisure: Studies in Recreational Geography. Cr. 4.

Prereq: junior standing. Spatial aspects of leisure and recreation; major topics include: philosophy of leisure and recreation, research techniques, behavioral and economic aspects, recreation in the city, recreational resource use, environmental impact, and future trends.

6263. (DNC 5283) Dance in the Recreational Setting. Cr. 3.

Equips the student with a knowledge of the various dance forms and the skills necessary to design a program of dance activities in a recreation setting.

6264. Legal Issues in Recreation and Park Services. Cr. 3.

Identification and exploration of legal concepts and issues related to professional leisure and recreational agencies and services.

6265. Supervision and Management in Recreation and Park Services. Cr. 4.

Prereq: 12 credits in recreation and park services. Open only to recreation and park services majors. Supervision of recreation personnel; managing recreation resources, program planning and development; staffing patterns; on-the-job training, decision-making, communications.

6266. Problems in Therapeutic Recreation. Cr. 4.

Prereq: R P 5267 or consent of instructor. Identification and exploration of problems and issues in Therapeutic Recreation; challenge and future perspectives; administrative and supervisory functions and methodology.

6267. Outdoor Recreation. Cr. 4.

Meaning, significance, historical background, facilities, agencies, and programs at the federal, state and local levels. Organizations and future projections.

6268. Community Education and Recreation Services. Cr. 4.

Examine the role of leisure in relation to education and, in particular, the place of school-sponsored recreation services; their relation to current trends in community education.

7261. Foundations for Community Recreation Leadership. Cr. 4.

Critical considerations concerning work, monotony, boredom, entertainment. Responsibilities of recreation and park service personnel for motivating individual awareness of and participation in worthwhile use of leisure.

7263. Landscape Design for Recreation Areas. (3,2). Cr. 4

No credit after former Recreation and Park Services 7267. Fundamentals of landscape design emphasizing park planning in the urban setting. Philosophy of contemporary design. Site analysis and dissemination of data, systematic approach to solving design problems, balance of function and aesthetics, elementary studio design projects and field inspections.

7264. Advanced Recreation Area Planning. (3,2). Cr. 4.

Prereq: R P 7263. Continuation of Recreation and Park Services 7263 with additional technical data for developing skills in urban park planning. Graphic expression and plan preparation. Facility-space relationships, topographic model construction, complex design, and field trip inspections.

7265. Planning Recreation Facilities. Cr. 4.

Prereq: R P 7263 or consent of instructor. Land acquisition and construction responsibilities of the recreation and park administrator. Facility layout and design to serve multifunctional, maintenance, and aesthetic objectives. Field inspections.

7266. Directed Study in Recreation and Park Services. Cr. 1-6 (Max. 6).

Prereq: consent of adviser. Open only to majors (minimum of three credits required for graduation). Individual student or a group of students, to pursue an intensive, guided research project

7268. Public Municipal Recreation and Parks Finance. Cr. 4.
 Departmental structures, budget process, income sources. Leadership recruitment and training programs; liability and immunity in recreation and park services; debt management; public and foundation grants.

7269. Terminal Master's Seminar and Essay or Project. Cr. 4.
 Prereq: consent of adviser.

8261. Current Professional Issues. Cr. 4.
 Prereq: RP 7261 or consent of instructor. Open only to recreation and park services majors. Identification, analysis, and attempted solutions to current problems, challenges and issues facing the profession of recreation and park services. Seminar and research assignments.

8265. (PE 8255) Critical Inquiry in Dance, Health Education, Physical Education and Recreation and Park Services (HE 8235). Cr. 4.
 Empirical, philosophical and historical inquiry in dance, health education, physical education and recreation and park services. Theory of measurement between these parameters. Ability to critically distinguish between these areas and the mode of inquiry appropriate to each.

8269. Master's Thesis Research and Seminar. Cr. 2-12 (12 required).
 Prereq: consent of adviser.



FACULTY

Office: 261 Matthaei Building

Director: Chalmer G. Hixson

Assistant Director: Vernon K. Gale

Assistant Director: Richard A. Swanson

PROFESSORS

Chalmer G. Hixson, Leon A. Lande, Dorothy M. La Salle (Emeritus), Joel G. Mason, Ruth L. Murray (Emeritus), Frank L. Oktavec (Emeritus), Laurence E. Russell (Emeritus), Alden W. Thompson (Emeritus), William N. Wasson

ASSOCIATE PROFESSORS

David L. Blievernicht, Istvan J. Danosi, Newman H. Ertell (Emeritus), Jane C. Fink, Vernon K. Gale, Robert J. Lueft, Frank A. McBride, Frederick A. Mulhauser, Robert T. Samaras, Julia M. Sanford (Emeritus), Herbert L. Smith (Emeritus), Jean A. Stanicek, Richard A. Swanson, Robert C. White

ASSISTANT PROFESSORS

Mary L. Barnett, Jacqueline A. Dailey, Sharon L. Dewey, Avanelle Kidwell, Charles H. Lewis, Richard B. Lowry, Patricia A. Nichols, Christ Petrouleas, Diane C. Pick, Georgia Reid, John A. Romas, William A. SaVile, William W. Sloan, Daniel O. Smith, Gloria J. Soluk, Ann G. Zirulnik

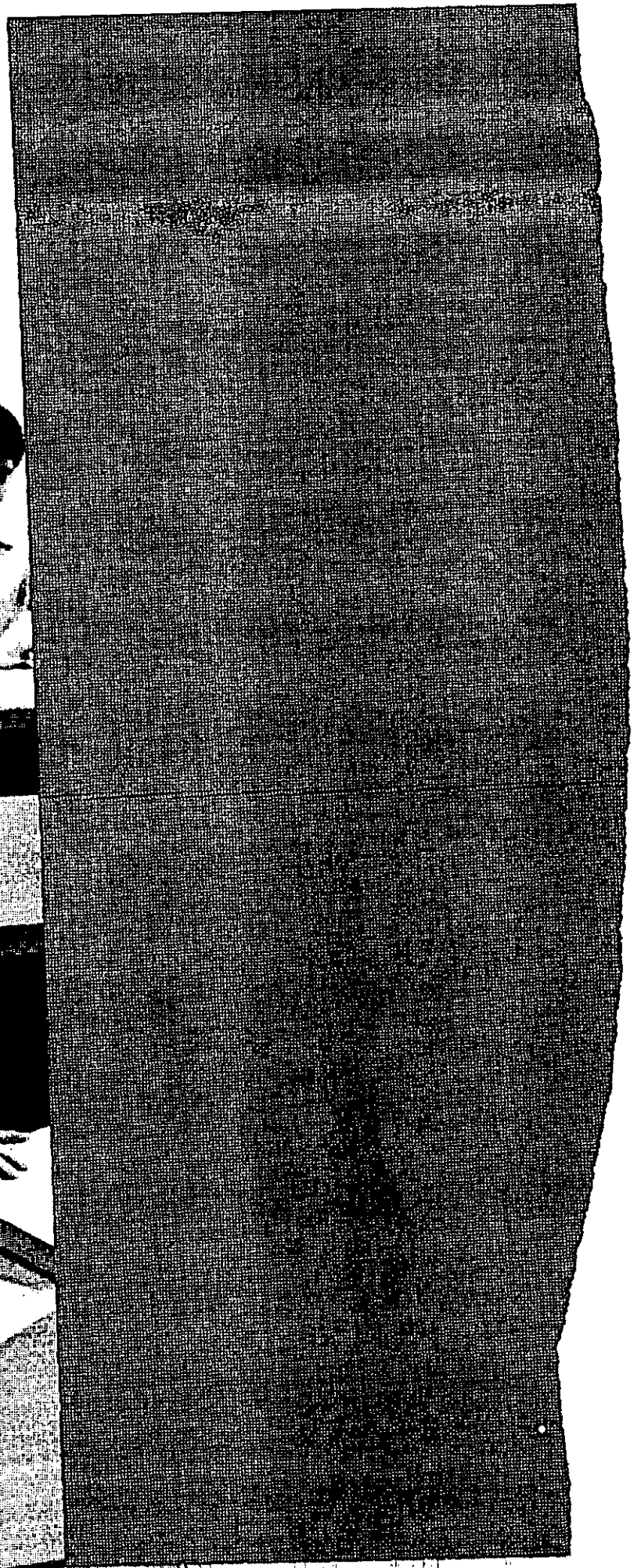
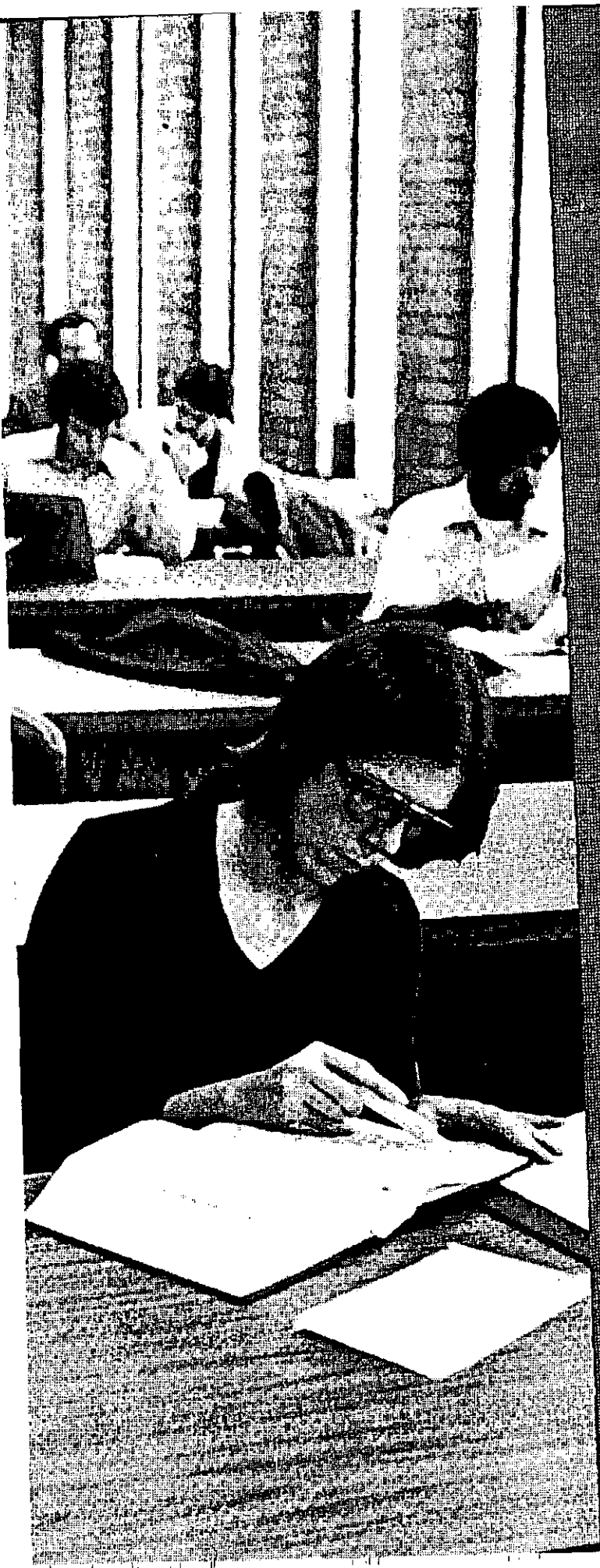
INSTRUCTORS

David C. Fiscella, Eva M. Jablonowski, Brad E. Kingery, Deborah A. Kutner, Steven C. Sauer, Vern G. Sharbaugh, Walter J. Stasinski, Richard E. Tressel

Division of Health and Physical Education Directory

Director261 Matthaei; telephone: 577-4249
 Assistant Director267 Matthaei; telephone: 577-4249
 Dance Department125 Matthaei; telephone: 577-4273
 Driver Education
 Department267 Matthaei; telephone: 577-4249
 Health Education
 Department127 Matthaei; telephone: 577-4275
 Health Department267 Matthaei; telephone: 577-4249
 Physical Education
 Department266 Matthaei; telephone: 577-4265
 Recreation and Park
 Services Department ..259 Matthaei; telephone: 577-4269
 Intercollegiate Athletics 101 Matthaei; telephone: 577-4280

Mailing address for all offices: Wayne State University, 5980 Cass, Detroit, Michigan 48202



Law School

DEAN: DONALD H. GORDON

Law School Calendar 1977-79

Fall Term 1977

Registration

First year evening students Monday, August 22
First year day students Friday, August 26
All other students and graduate law students Monday, Wednesday,
and Thursday, August 29, 31, and September 1

Classes Begin

First year evening students Monday, August 22
First year day students Monday, August 29
All other students Tuesday, September 6
Thanksgiving recess Thursday - Sunday, November 24 - 27
Classes end Wednesday, December 7
Review and reading period, and
Registration for winter term Thursday-Sunday, December 8-11
Examination period Monday - Thursday, December 12 - 22
Fall term ends Saturday, December 31
University commencement Tuesday, December 6

Winter Term 1978

Winter term begins January 1, 1978
Classes begin Tuesday, January 3
Spring recess Sunday, March 5, through Sunday, March 12
Classes end Tuesday, April 11
Review and reading period Wednesday, April 12 — Tuesday, April 18
Examination period Wednesday, April 19 through Tuesday, May 2
Grading, consultation, and final
faculty meetings Wednesday, May 3, through Wednesday, May 31
Academic year ends Wednesday, May 31
University commencement Tuesday, June 20

*Summer Term 1978**

Registration Monday, May 15, through Thursday, May 18
Classes begin Monday, May 22
Classes end Tuesday, July 11
Examination period Wednesday - Saturday, July 12 - 15
Summer term ends Saturday, July 15

* The dates given are tentative.

*Fall Term 1978**

Registration

First year evening students Monday, August 21
First year day students Friday, August 25
All other students and graduate law students Monday, Wednesday,
and Thursday, August 28, 30 and 31

Classes Begin

First year evening students Monday, August 21
First year day students Monday, August 28
All other students Tuesday, September 5
Thanksgiving recess Thursday - Sunday, November 23 - 26
Classes end Wednesday, December 6
Review and reading period, and
Registration for winter term Thursday - Sunday, December 7 - 10
Examination period Monday - Thursday, December 11 - 21
Fall term ends Saturday, December 31
University commencement Tuesday, December 12

*Winter Term 1979**

Winter term begins January 1, 1979
Classes begin Monday, January 8, 1979
Spring recess Sunday, March 4, through Sunday, March 11
Classes end Saturday, April 14
Review and reading period Sunday, April 15 — Sunday, April 22
Examination period Monday, April 23, through Saturday, May 5
Grading, consultation, and final
faculty meetings Monday, May 7, through Thursday, May 31
Academic year ends Thursday, May 31
University commencement Tuesday, June 19

*Summer Term 1979**

Registration Monday, May 14, through Thursday, May 17
Classes begin Monday, May 21
Classes end Tuesday, July 10
Examination period Wednesday - Saturday, July 11 - 14
Summer term ends Saturday, July 14

* The dates given are tentative.

Foreword

The chief goal of study at Wayne State University Law School is professional: to prepare the student to represent clients and to deal effectively with the problems he or she will encounter in the practice of law. At the same time, the school seeks to develop and sharpen the student's appreciation of a lawyer's responsibility, both to clients and the public, as well as to develop a constructively critical sense of the processes and the substance of the law. Finally, a major effort is now underway to make certain that students are challenged to relate law and legal institutions to the main social problems of today and tomorrow so that they will not only get a sound grounding in the law but also instruction that is relevant to the realities of life in contemporary society. To this end, the urban area that surrounds Wayne State University is an integral part of the School and provides a means by which the many vital social problems of the day may be understood and solved.

HISTORY

In cooperation with the Board of Education of the City of Detroit, in 1927 a group of public-spirited lawyers established a law school as part of the higher education system known as the Colleges of the City of Detroit. Subsequently these colleges were designated as Wayne University. In 1956 the University became Wayne State University, part of the higher education program of the State of Michigan.

ACCREDITATION

The Law School is a member of the Association of American Law Schools and is accredited by the Michigan State Board of Law Examiners, by the University of the State of New York, and by the American Bar Association.

THE LAW CENTER

The School is located at the north end of the University campus. The new buildings, dedicated in 1966, provide both the architectural and functional facilities essential to a modern law school.

One building has five large classrooms with terraced seats to provide maximum auditory-visual relationships of students to each other and the instructor. The floors are carpeted for comfort and excellent acoustics, and overhead projectors and other equipment for use of films and tapes are available in each room. This building also has lounges for the students.

The library building is connected to the classroom building by an arcade. It contains the Arthur Neef Law Library; seminar rooms; a large court room; offices for the faculty, administration, and the Wayne Law Review; a faculty-student lounge; and student lounges and lockers.

A third building in the law complex was opened in 1971. It currently houses the offices of the Clinical Advocacy Programs, Employment Discrimination Clinic, Placement Office, offices for faculty and legal Research and Writing instructors, and additional study carrels.

ARTHUR NEEF LAW LIBRARY

The Law Library, named in honor of Dean Emeritus Arthur Neef who served as Dean of the Law School from 1936 to 1967, is open to the faculty and students of the Law School, as well as the University community at large, members of the legal profession, representatives of state and federal agencies, alumni, and students of other law schools.

In response to the ever-growing demands made upon its resources, the Library collection expanded from 45,000 volumes in 1962 to 73,000 in 1967, and now contains approximately 191,000 books and periodicals, making it the second largest law library in the state of Michigan. About 700 periodicals, as well as the filings for more than 500 looseleaf services, are received regularly. In the fall of 1971 the Wayne State University Law Library was designated as an official depository for United States government publications. As an official depository, the Library added approximately 2500 new serial titles to its acquisitions list.

In addition to a virtually complete collection of all Michigan legal materials, the Library contains the reported cases of the highest courts of all the states and territories and some of the lower court reports, as well as all available current statutory compilations. It also contains such other state materials as legislative reports, session laws, and attorney general reports. There are sets of all federal cases, statutes, treaties, and court rules available in numbers adequate for active research by faculty and students. In addition, the Library has such research aids as digests, citators, legal encyclopedias, dictionaries, form books, looseleaf services, indexes, and reference works. All American and some foreign law reviews and similar legal publications are available. There are significant holdings of films and microforms, including the United States Supreme Court records and briefs from 1930 to date, and all congressional publications from 1970. There are also special library collections for the faculty and for those engaged in special Law School work such as Law Review, Moot Court, and Legal Aid. The students and faculty at the Law School also have available the use of LEXIS computerized research for instructional purposes.

The Library has benefited greatly from the generosity of two donors who have made major contributions in recent years. Dr. Alwyn V. Freeman made a very substantial gift of international and comparative legal materials, a great part of which now forms the Alwyn V. Freeman International Law Collection. A further gift, consisting of 3,000 volumes of basic legal materials to be used primarily by the Wayne Law Review, was made in honor of Judge Robert S. Marx by his testamentary trustees. The Library also contains sizeable foreign law holdings.

ACADEMIC PROGRAMS AND DEGREES

The Law School offers academic programs leading to the degrees of Juris Doctor (J.D.), Master of Laws (LL.M.), and Master of Medical Jurisprudence (M.M.J.). It also conducts a summer session, and participates with the Law School of the University of Michigan and the State Bar of Michigan in operating the Institute of Continuing Legal Education, which offers specialized courses to practicing lawyers.

The J.D. is a graduate degree requiring as a prerequisite an undergraduate degree at the level of the Bachelor of Arts. The LL.M. is a graduate degree in law offered by the Law School in the fields of taxation and labor law, and requiring as a prerequisite the J.D. or its equivalent. The M.M.J. is a graduate degree offered to those holding the M.D. degree.

JURIS DOCTOR (J.D.) DEGREE

The Juris Doctor degree is conferred upon students who are admitted as candidates for the degree and who have satisfactorily completed the program of study prescribed in the academic regulations of the Law School. This includes the completion of 120 credits of passing work with an average grade of 2.0 or better, and full-time residence for a period of three years, or its equivalent.

In addition to the regular three-year degree program, the Law School offers an evening program intended primarily for those students who work during the day and are unable to devote their full time to the study of law. It permits the student to complete requirements for the J.D. degree in either four or five years. Generally, a student in the four-year program attends classes five nights a week completing about thirty quarter credits each year, and a student in the five-year program attends classes four nights a week completing about twenty-four quarter credits each year. The course of instruction and the faculty are substantially the same as those of the day sessions. After the first year required courses are completed, students may elect courses in day and evening divisions simultaneously.

The first year curriculum for J.D. candidates includes the required basic courses of contracts, criminal law, civil procedure, property and torts. In addition to these basic courses, the first year student also takes a course in legal writing and research, concentrating on legal writing and appellate advocacy in practice appellate proceedings. This culminates in an oral argument judged by an instructor and members of the Moot Court. After completing these basic courses, the student can choose among 100 elective courses and seminars. While many of the electives deal with urban legal problems, there are several specialized courses dealing with such areas as corporations and taxation as well as opportunities to take interdisciplinary courses. For students wishing to focus their studies in a particular area of the law the following concentrations are offered: commercial law, taxation, criminal law, international and comparative law, and urban law.

After their first year, students may, if they wish, choose to participate in one of four clinical programs for which academic credit is given.

Honors Degree—The Law School awards the J.D. degree with the special distinction of *cum laude*, *magna cum laude*, or *summa cum laude* to students whose work merits special honor.

MASTER OF LAWS (LL.M.) DEGREE

The Master of Laws (LL.M.) degree may be earned with specialization in either taxation or labor law. It may also be taken with specialization in corporation and financial law—a program which combines work in tax and labor law with advanced corporate courses and related graduate courses in economics and business administration. The LL.M. program is a part-time evening program designed primarily to meet the needs of practicing lawyers in advanced training in taxation or labor law and ordinarily takes three years to complete. The requirements for obtaining the LL.M. are (1) satisfactory completion of thirty-six quarter credits in course work (the normal maximum load permitted is nine credits per quarter), and (2) satisfactory completion of a legal essay under the direction of an instructor, in which the student registers for an additional three quarter credits of essay supervision. Graduation from an accredited law school in the United States is a prerequisite for admission to the LL.M. program. In addition, consideration is given to the applicant's academic standing in law school (an honor point average of at least 2.25 is generally required) and to his background in the field in which he wishes to work. Application blanks and further information about the LL.M. program may be obtained by writing to the Director of the Graduate Program in Law, Law School, Wayne State University, Detroit, Michigan 48202. In addition to filing a completed application, applicants for the LL.M. program should arrange to have the law school they attended send a complete transcript of their records.

MASTER OF MEDICAL JURISPRUDENCE (M.M.J.) DEGREE

The master's program in Medical Jurisprudence is designed to permit medical school graduates interested in medico-legal work to acquire familiarity with law and legal procedure related to this field. It is a part-time program, to be taken over a two- or three-year period while the medical graduate is in internship or residency programs or in practice. The requirements for obtaining the degree are (1) satisfactory completion of forty-two quarter credits in course work, consisting of a number of basic required courses plus approved electives from the regular basic professional program of the Law School; (2) satisfactory completion of a thesis under supervision of a joint committee of Law School and Medical School faculty. At least six quarter credits of thesis supervision credits will be required of the student in addition to the course credits specified above. The M.D. degree is required for admission to this program. Further information about this program may be obtained by writing to the Director of the Graduate Program in Law, Law School, Wayne State University, Detroit, Michigan 48202.

COMBINED LAW AND GRADUATE STUDIES

The Law School allows students, who wish to do so, to pursue a master's degree in a field other than law concurrently with their study of law. Qualified students, after their first semester in Law School, may apply to the Law School for permission to take a combined degree program and to the appropriate school or college of the University for admission as a master's candidate. If admitted, students may divide their time between the Law School and the concurrent program of study, devoting sufficient time to each to meet the academic and residence requirements of both schools. This program will require a minimum total of four years of study at the University.

Students who are interested in taking certain courses related to their legal training in other schools and colleges of the University may receive credit towards their law degree for the satisfactory completion of such work. The student must first secure the approval of the Law School to register for such courses, and the amount of Law School credit granted for such courses will be determined by the Dean. For detailed information on graduate courses and programs in the University, the bulletins of the other schools and colleges should be consulted.

SPECIAL CURRICULAR PROGRAMS

CLINICAL ADVOCACY PROGRAM

The Law School offers clinical advocacy programs in criminal and civil law which permit second and third year law students to directly represent indigents in criminal and quasi-criminal actions in Detroit courts, misdemeanor and civil proceedings in State courts, and *habeas corpus* petitions in Federal courts. Students also represent indigent clients in a variety of civil suits, and may participate in class actions and other civil litigation designed to effect legal reform.

EMPLOYMENT DISCRIMINATION CLINICAL LAW PROGRAM

Established at Wayne State University Law School in 1972 with a grant from the Federal Equal Opportunity Commission, this program offers law students clinical and traditional seminars on employment discrimination litigation. Students will work on actual cases as fact gatherers and take part in various stages of the administrative and court proceedings. It will also include symposia and continuing legal education programs of the practicing bar to give them a better understanding of the Title VII Equal Employment Opportunity Act enforcement mechanisms.

JUDICIAL INTERNSHIP PROGRAMS

A small number of specially selected students have the opportunity to clerk for distinguished judges in the Detroit area, the Wayne County Prosecutor's office, and the United States Attorney's office during their second or third year of Law School.

LAW SCHOOL SUMMER PROGRAM FOR MINORITY STUDENTS

This summer law program is designed to assist minority group students who apply for admission to the Law School for the fall term but require assistance because of traditional admission standards. Final admission determination for students admitted to the program will be deferred pending successful completion of the two first-year law school courses offered in the summer program. Twelve credits will be given for these courses conditioned upon successful completion of the Program and enrollment in the Law School in the fall term.

COMMUNITY-RELATED PROGRAMS

CENTER FOR THE ADMINISTRATION OF JUSTICE

6001 Cass Avenue

The Center for Administration of Justice was established at the Law School in 1971 with a grant from the Kellogg Foundation; it has also received grants from the Michigan Office of Criminal Justice Programs, Michigan Office of Highway Safety Planning, and the Law Enforcement Assistance Administration. The Center offers in-service educational opportunities for Michigan judges and court personnel, undertakes applied research and evaluation projects affecting judicial administration in Michigan, and community leadership conferences bringing together representatives of key segments of Michigan communities and the Michigan judiciary. The director of the Center is Professor B. J. George.

INSTITUTE OF CONTINUING LEGAL EDUCATION

312 Hutchins Hall, 625 South State Street,
Ann Arbor, Michigan 48104

The Institute of Continuing Legal Education is a joint venture of the University of Michigan Law School, Wayne State University Law School and the State Bar of Michigan. Its primary responsibility is the formulation and administration of a program to facilitate the transition from law school to active practice, to improve the general professional competence of the members of the bar and to provide advanced specialty courses for the practitioner. The director of the Institute is Austin G. Anderson.

ACADEMIC PROCEDURES

For complete information regarding academic rules and regulations of the University, students should consult the General Information section of this bulletin, beginning on page 5. The following additions and amendments pertain to the Law School.

ADMISSION

To the Law School

Admission to candidacy for the J.D. degree is based on a judgment as to the applicant's capacity for the study of law. The applicant must hold a baccalaureate degree from an accredited four-year college or university. For serious consideration the applicant should have the equivalent of a 3.0 grade point average and a score of 600 on the Law School Admission Test. A higher score may offset a lower grade point average, and vice versa.

Each applicant for admission should submit a completed application form to the Admissions Office, Law School, Wayne State University, Detroit, Michigan 48202, together with a check or money order for \$15.00, payable to Wayne State University.¹ This application fee is not refundable and is not applied against tuition in the event of admission. Applications should not be filed earlier than September of the year prior to that in which the applicant is seeking admission.

Each applicant should observe the following procedures and points of information:

1. Register with the Law School Data Assembly Service (LSDAS). Registration form may be obtained by writing to LSDAS, Educational Testing Service, Box 944, Princeton, New Jersey 08540. The registration form should be sent directly to the LSDAS, *not to the Law School.*

2. After registering with LSDAS, have official transcripts sent from each college or university attended to LSDAS, Educational Testing Service, Box 944, Princeton, New Jersey 08540, *not to the Law School.*

The LSDAS will analyze the transcript and send a copy to this law school and others you designate on the registration form. Applicants may submit to the Law School supplementary transcripts covering any work completed *after* initial registration with LSDAS.

Upon acceptance, applicants are required to have transcripts submitted from each college or university where a course was earned. *These transcripts must be sent directly to the Law School from the issuing institutions.*

3. Each applicant for admission must take the Law School Admissions Test (LSAT) administered by the Educational Testing Service. The tests are given in October, December, February, April, and July each year in centers located throughout the United States. One of these centers is located

¹ An application for admission form may be obtained from the Law School Admissions Office.

in Detroit. Application blanks and information concerning exact dates, times and places of the tests may be obtained from the Law School Admission Test, Educational Testing Service, Princeton, New Jersey 08540. Applications should be filed no later than thirty days in advance of each indicated examination date.

It is recommended that applicants take the test as early as possible during their senior year at college, preferably in October or December, and, in any event, no later than February. It is not necessary that an application for admission be on file with the Law School before taking the test, but applicants should be sure to request the Educational Testing Service to send a copy of their test scores to this School.

4. *All applications for admission, together with all necessary papers (LSDAS reports and test scores), must be on file with the Law School before April 15 of the year in which admission is sought. It is the applicant's responsibility to ascertain that all credentials are filed with the Law School; no action will be taken on applications until such credentials are received by the Law School.*

5. The Law School does not require or encourage letters of recommendation. Except under special circumstances personal interviews are not encouraged.

6. For the information of prospective applicants, the average LSAT and grade point average for the class entering in the fall of 1975 were 619 and 3.5, respectively.

7. Consideration of completed applications and notifications of decisions by the Committee on Admissions will take place between mid-January and mid-March. Applications filed after mid-March will be acted upon as they are completed, and the response to them will depend on vacancies remaining at that time.

The combination of test scores, academic record, and other relevant information will be reviewed in each case by the Committee on Admissions. The Committee may request additional information from an applicant or suggest a personal interview. Applicants who feel that they have special problems not covered in this Bulletin should consult with the Director of Admissions at the Law School.

8. Beginning students are admitted only to the sessions beginning in August. Please note that attendance at the orientation program, beginning August 29, 1977, for full time students, and August 22, 1977, for extended term students, is mandatory.

9. First year evening (extended term) students may elect either the four-year program, which requires attendance four evenings per week, or the five-year program, which requires attendance three evenings per week (four evenings in alternate weeks).

10. A limited number of students who have substantial child care responsibilities and who apply and qualify for admission to the day program may be allowed to take a slightly reduced course load during the first year program. To be considered for admission on this basis, an applicant must indicate his or her desire in Item 30 of the application for admission. In addition, a separate statement must accompany the application that gives a detailed account of the personal circumstances which necessitate this request.

ADMISSION WITH ADVANCED STANDING

Students at other accredited law schools may apply for admission with advanced standing, but must have completed at least a full year of law study. If admitted, they may, at the discretion of the Dean, be granted up to two years of credit for work done elsewhere. Applicants for admission with advanced standing must meet the Law School's general requirements for admission to the J.D. program and must be in good standing at the school from which they seek to transfer. No action will be taken on their applications until final grades in all courses are received.

Admission with advanced standing may also be granted to students of foreign law schools under like conditions as determined by the Dean.

Preparation for Law Study

The Law School has no fixed requirements with respect to the content of pre-legal education, but its Admissions Committee will take into account the nature of college work done, as well as the grades achieved. In general, an undergraduate liberal arts education is preferred to one which is narrowly specialized.

For additional information, see the current *Pre-Law Handbook* edition, published and prepared by the Law School Admission Test Council and the Association of American Law Schools. This book includes material on the law and lawyers, pre-law preparation, applying to law schools, and the study of law, together with individualized information on most American law schools. It may be ordered from the Educational Testing Service, Princeton, New Jersey 08540, and is also available in most University bookstores.

FEES

Application Fee

A fee of \$15.00 must accompany the application for admission. The fee is to defray in part the cost of processing the application and is not refundable.

Admission Deposit

An admission deposit of \$50.00 is required of each applicant admitted to a first year program in the school and is payable upon notification of acceptance. The purpose of this deposit is to reserve a place in the class for the entering student. The deposit is refundable only upon application prior to June 15 and will be applied against the tuition if the applicant enrolls.

Tuition and Fees

For students enrolling in a full class load of 18-24 quarter hours, the fees for academic year 1976-77 were as follows:

Michigan Residents: \$1,372.00 for the full academic year, or \$686.00 each for fall and winter terms.

Non-Residents: \$2,878.00 for the full academic year, or \$1,439.00 each for fall and winter terms.

For students enrolled in a reduced program, the following fee schedules apply:

Quarter Credits	Resident	Nonresident
1 - 4	\$175.00	\$ 333.00
Each credit, 5 - 18	36.50	79.00
18 - 24 (full-time)	686.00	1,439.00
Each credit over 24	35.50	78.00

Law students who elect courses in other colleges shall pay the appropriate fee as though all courses were part of their annual law program.

Students may make a minimum deposit when they register each term, with the balance due in two approximately equal payments due at the end of the third and seventh week after the first day of classes. (All fees and fee regulations are subject to change at any time by the Board of Governors of the University.)

Checks or money orders should be made payable to Wayne State University. Checks are accepted subject to collection. If a check is not honored by the bank, the student will be notified of the action he must take to complete his registration and/or of any liability he has incurred. The applicable Late Registration Fee will be assessed when the check is replaced with a valid payment.

Late Registration — A late registration fee, which is non-refundable, will be charged for any registration after the end of the official registration period as follows:

During the first two weeks of classes	\$10.00
Thereafter	25.00

Penalties for Non-Payment of Fees — A late payment charge of \$5.00 will be assessed whenever a delinquent balance occurs as a result of a missed installment. In addition, a HOLD will be placed on the records of any student who has past due indebtedness, including the late payment charge or charges, to the University. While it is in effect, the student may not re-register for a subsequent term, a diploma will not be issued, nor will a transcript or other information be released to prospective employers or others. Removal of the hold will be expedited if the student will ask for a release when paying the overdue balance and will take the release to the Registration Office. Student grades may be recorded but are not considered as being earned nor is a degree earned until the student has paid all unpaid tuition as well as any money borrowed from student loan programs.

Cancellation of Fee Charges

If a student notifies the Registration Office in writing of his withdrawal or of a reduction in his program, he shall be entitled to a cancellation of the fees applicable to the portion of the program which he has dropped, as follows:

Withdrawal through the end of the
third week of classes 100% less \$20.00*

Withdrawal during the
fourth through sixth week of classes . . . 60%

Thereafter No refund

For the purpose of adjustment or cancellation of fees, a notice of withdrawal or reduction in program sent by mail will be considered effective at the time of postal cancellation, if legible. Notices of withdrawals or reductions with Saturday or Sunday postmarks will be considered effective as of the previous Friday.

Consult Registrar for summer fee cancellation schedule.

Graduate Fees

Graduate law students pay regular University graduate fees. See general information section of this bulletin, page 11.

BOOKS

Books for classroom use entail an initial expenditure of about \$175-\$200 per year, but in succeeding years savings may be effected by the disposal of books previously used. Law textbooks are available at the University Bookstore.

ACADEMIC REGULATIONS

STUDENT RIGHTS AND RESPONSIBILITIES

For information regarding the University statement on student rights and responsibilities, see page 18.

The faculty of the Law School has also approved a set of academic regulations, copies of which are available to all students enrolled in the Law School.

APPLICATION FOR DEGREE

Students who anticipate graduating in June of an academic year must file an application for degree in the Law School Records Office not later than March 29 of that year. Students who anticipate graduating in December of an academic year must file an application for degree not later than October 11 of that year.

MASTER'S ESSAY ELECTIONS AND FEE POLICY

A graduate student who has enrolled for all elections (including essay), and who has completed all the requirements of these elections except for those associated with the essay, will be required to register for one unit (1-4 credits) of

essay direction during each term that he uses facilities or receives advisory services until such time as the student: (a) completes the requirements for the degree; (b) declares himself no longer a candidate for the degree; or (c) exceeds the time limit allotted for securing the degree.

For these units the student will pay customary fees and will register as an auditor. No degree credit will be granted for these elections which are beyond the required three credits for essay. A mark of Z (Auditor) will be recorded on the student's master record for these additional elections.

BAR EXAMINATIONS

Students who contemplate practicing law in states other than Michigan should consult the Director of Admissions, at the earliest opportunity, with reference to the requirements of such states. In several states prospective candidates are required to notify the bar examiners at the beginning of their law study of their intention of taking the examinations upon graduation.

There are no special requirements in Michigan apart from certification of graduation from the Law School, filing of the necessary application, and payment of the examination fee to the Board of Law Examiners.

The Bar examination consists of two parts: The multi-state examination composed of objective questions; and an essay part prepared by the Michigan Board of Bar Examiners. An applicant for the Michigan Bar must pass either half of the examination. The examinations are as comprehensive as the number of questions and the allotted examination time permits.

Although the curriculum of the school is not primarily designed for preparing students to pass the various state bar examinations, substantially all of the subject matter of the examinations is covered adequately in the regular courses. However, the objective of the school is the development of an understanding of the theory of law, its application, and the techniques of practice — in other words, to prepare a student for the practice of law. At the present time, the State Bar Examiners find themselves limited to the much narrower question of the applicant's knowledge as indicated by a written examination in certain subjects. But inasmuch as the applicant must pass the examinations in order to practice, it is incumbent upon him to prepare for them. Generally the best plan is to review the courses in which examinations are to be given (list of subjects may be obtained from the Law Library), supplementing this with study of state cases and legislation.

*For students who have been required to pay the \$50.00 deposit, the amount of refund will be 100 per cent less \$50.00.

FINANCIAL AIDS SCHOLARSHIPS AND AWARDS

From the Law School

The Law School has a financial aid program designed to help assure that a student will not be denied a law school education because of insufficient family and personal resources. The program is designed, within the limits of available funds, to supplement a student's own resources with financial aid to cover his expenses. A few scholarships are available for first year students on the basis of need and exceptional promise. Some financial aid awards are based entirely on need, while other scholarship fund awards are made on a combination of need and academic achievement. To the extent that funds are available, the School will seek to assist students who make a reasonable showing of need to meet a standard law school budget. Applications for financial aid must be submitted anew each year.

A candidate wishing to apply for a Law School scholarship may secure financial aid forms from the Graduate and Professional School Financial Aid Service (GAPSFAS), Box 2614, Princeton, New Jersey 08540, or from almost any law school. The completed application should be filed no later than April 15 and sent directly to GAPSFAS, *not to the Law School*. The application contains sections to be completed by the applicant, by the spouse or spouse-to-be, and by the applicant's parents. All three sections must be completed if applicable. The Graduate and Professional School Financial Aid Service will analyze the information contained in these forms and forward the results to the Law School.

While there is no legal obligation to repay scholarship and grant awards, it is the School's expectation that students receiving these awards will understand that the continuation and success of this program depends, in large measure, upon a return of the funds granted.

From Wayne State University Office of Scholarships and Financial Aids

A candidate may also inquire directly of the University's Office of Scholarships and Financial Aids, 100 Antoinette, Detroit 48202, for assistance for educational expenses. This aid may be in the form of scholarships, grants-in-aid, and National Direct Student Loans, either singly or in combination.

To insure the best results, a student should apply to both the University Office of Scholarships and Financial Aids and to the Law School for financial aid.

Michigan Higher Education Assistance Authority Guaranteed Student Loans

The University Financial Aids Office administers the Michigan Higher Education Assistance Authority guaranteed student loans; however, applications for loans under this pro-

gram must be initiated by the student with a participating lender (bank, credit union, savings and loan association). *Applications must be obtained from the lender.*

LAW SCHOOL SCHOLARSHIPS

Stanley J. Antosz Scholarships — The late Stanley J. Antosz was a factory worker interested in furthering the higher education of students who, by their own earnings, have provided an equal amount of funds for their education. This bequest is designated for second and third year students.

Bodman-Longley Award — This fund was established by the firm of Bodman, Longley, Bogle, Armstrong and Dahling. An annual award of \$500 will be made to the outstanding minority-group student entering his or her senior year who needs financial assistance.

Clarence M. Burton Memorial Scholarships — Through the continuing generosity of the Clarence M. Burton Memorial Foundation substantial cash awards are made to outstanding seniors holding the principal positions on the editorial staff of the *Wayne Law Review*.

The Alexander Freeman-Hague Academy Award — This fund was established to help defray expenses for one individual (faculty member or law student) chosen by the Dean to attend the Hague Academy of International Law.

The Alexander Freeman Scholarships — Funds for this scholarship were provided by the late Mr. and Mrs. Alexander Freeman in recognition of the important contributions made in the fields of international and comparative law by Dr. Alwyn Freeman. A scholarship is awarded annually to a student who is particularly interested in these areas of the law and expects to pursue a career in them. These funds can, to a limited extent, be used for loan purposes.

Jason L. Honigman Scholarship — Through the generosity of Mr. Jason L. Honigman, senior partner in Honigman, Miller, Schwartz and Cohn, this award is made to the Editor-in-Chief of the *Wayne Law Review*.

Law School Minority Students Financial Aid Fund — Funds are provided by the Harold E. Bledsoe Black Law Student Scholarship Fund and various Detroit area law firms and miscellaneous contributors interested in furthering the law school education of minority students.

Law Wives' Club Scholarship — Each year the Law Wives award scholarships to a deserving married student on the basis of need and scholarship. These scholarships are open to day and evening students.

The Arthur F. Lederle Scholarships — Funds for applicants to the first-year class having both financial need and the potential for superior academic work were provided by the family and friends of the Honorable Arthur F. Lederle. Judge Lederle, a distinguished member of the United States District Court, now retired, has been active in the Law School program from its beginning.

The Robert S. Marx Scholarship Fund—Judge Robert S. Marx was a highly respected jurist, lawyer and law teacher whose career encompassed many activities in his native city of Cincinnati and in Detroit. The Trustees of his estate, in recognition of his interest in legal education, have made a generous grant to the Law School for scholarships for worthy students in their senior year.

Boaz Siegel Book Awards—This fund was established in 1973 by Professor Emeritus Boaz Siegel to provide needed books and materials for deserving freshman law students.

The Max Smitt Law Scholarship—This fund is provided by Helen S. Warren as a memorial to her late brother, Max Smitt, an eminent member of the Michigan State Bar, for scholarships for needy students with high scholastic standing.

William D. Traitel Scholarship Fund—William D. Traitel was engaged in real estate enterprises and had a special interest in the development of the University. His bequest to W.S.U. was designated for scholarships for second and third year law students on the basis of superior academic achievement and financial need. These funds can, to a limited extent, be used for loan purposes.

Ferne Walter Scholarship—Ferne Walter was a 1941 graduate of the Law School. This memorial scholarship is to be awarded on the basis of high academic achievement and financial need.

University Scholarships—A number of scholarships which provide for the remission of all or part of the fees are available to law students based both upon scholarship and the demonstration of need.

Substantial contributions to the scholarship funds were made during the past year through the Italian-American Lawyers' Wives, Harry B. Keidan Memorial, Lawyers' Wives of Detroit, Lawyers' Wives of Livonia, Macomb County Lawyers' Wives, and the Uptown Business and Professional Women's Club.

LOAN FUNDS

Information about the following loans may be obtained from the Law School:

The Ernest C. Wunsch Student Loan Fund—Established by the late Mr. Wunsch of the Detroit Bar, a member of the participating faculty of the Law School, and his friends, this fund provides short-term loans to students for tuition, books or other emergency needs where there is reasonable prospect of repayment prior to the next academic year.

Joseph S. Radom Loan Fund—Established by Joseph S. Radom, class of 1937, to provide financial assistance to law students for tuition, books and supplies.

Leon Cousens Memorial Loan Fund—This loan fund was established to provide financial assistance for law students, primarily for tuition, books and supplies.

Alexander Freeman Loan Fund—This loan fund was established to provide financial assistance for junior and senior law students having the requisite grade average and financial need. The funds are available as interest bearing and non-interest bearing loans, on the basis of repayment after graduation and before graduation, respectively.

Law Student Emergency Loan Fund—A limited amount of funds are available for short term loans to law students, for tuition, books and supplies.

William D. Traitel Loan Fund—This loan fund was established to provide financial assistance for junior and senior law students.

Information about the following loan may be obtained from the Office of Scholarships and Financial Aids, 100 Antoinette, Detroit 48202:

Emanuel Graff Scholarship Loan Fund—This fund was established in memory of Manny Graff, a Detroit area painting contractor with a vision of a society free of injustice, with employment, health care and education for all. The purpose of this loan fund is to enable other adults who share that vision and who have encountered financial hardship to have the opportunity to further their education. The Fund will loan up to \$500, interest free, to students otherwise ineligible for financial aid, to assist in meeting educational expenses.

FINANCIAL AID AVAILABLE FROM OUTSIDE AGENCIES

Ida and Benjamin Alpert Foundation Scholarships—For residents of Michigan who have applied to and have been accepted for admission to a law school, or are presently enrolled in law school. Application deadline is July 16. Winners are determined by essay competition. For information, write to Judge Frank S. Szymanski, 1215 City-County Building, Detroit, Michigan 48226.

DeWaters Student Aid Fund—Scholarships for law students who are legal residents of Genesee County. For application information, write to the DeWaters Student Aid Fund, Flint Board of Education, Burroughs House, 925 South Avon Street, Flint, Michigan 48503.

Somerset County (New Jersey) Bar Association operates a program of scholarships and loans to law school students residing in Somerset County, New Jersey. Applications and information may be obtained by writing to the Somerset County Bar Association, c/o William B. Rosenberg, Esq., 35 North Bridge Street, Somerville, N.J. 08876.

The Hattie M. Strong Foundation administers a loan program for American college students on the basis of individual merit, without regard to race, sex or religion. Loans are interest-free and do not require collateral. For information write to Hattie M. Strong Foundation Student Loan Program, 409 Cafritz Building, 1625 Eye Street, N.W., Washington D.C. 20006.

The Earl Warren Legal Training Program, Inc.—A limit number of scholarship grants are awarded annually to law school applicants. Applications must be submitted 1

March 15 for the following academic year to The Earl Warren Legal Training Program, Suite 2030, 10 Columbus Circle, New York, New York 10019.

Weymouth Kirkland Law Scholarships—One year scholarships for entering law students who are United States citizens and residents of the states of Illinois, Indiana, Iowa, Michigan or Wisconsin. For application procedure, write to the Weymouth Kirkland Foundation, 57th floor, 200 East Randolph Drive, Chicago, Illinois 60601. Deadline for submitting applications is in February for the following academic year.

For other scholarship and loan program information, inquire at the Law School Admissions Office.

AWARDS AND PRIZES

American Jurisprudence Awards—The Lawyers Cooperative Publishing Company and the Bancroft-Whitney Company, joint publishers of *American Jurisprudence*, make annual awards of relevant volumes to students earning the highest grades in selected courses.

Nathan Burkan Memorial Competition—This competition was originated in 1938 by the American Society of Composers, Authors and Publishers to stimulate interest in the study of copyright laws. Annual awards of \$250 and \$100 will be made to the two seniors whose papers on some topic of copyright law are found by the Dean to be the best submitted. These papers are eligible, in competition with papers from other schools, for national awards of up to \$1,500.

Certificate Awards—Student leaders in such activities as the Free Legal Aid Clinic, Law Review, Moot Court, and the Student Board of Governors are recognized for their noteworthy service to the school by being awarded certificates of merit.

Client Counseling Competition—This competition, originated by Professor Louis Brown of the University of Southern California Law School and presently sponsored by the Law Student Division of the American Bar Association, involves the simulation of a law firm consultation with a client. Teams composed of two students each compete in preparing a pre-interview strategy memorandum, interviewing a client to elicit information needed to handle the legal problem presented, and then in preparing verbally a post-interview memorandum. The best team intramurally chosen by an outside panel of practitioners then goes on to participate in a regional competition, the winners of which in turn compete in a national competition. Monetary prizes are awarded the winners on the regional, as well as national competition, levels. Law School certificates of merit are also awarded to student participants.

Corpus Juris Secundum Awards—The American Law Book Company awards a selected title of *Corpus Juris Secundum* to a student in each class of the day and evening divisions for significant contribution to over-all scholarship.

Evans and Luptak Business Planning Prize—The law firm Evans and Luptak makes an annual award to the student earning the highest grade in BL 0619, A Transactional Approach to Business Planning.

Hornbook Awards—The West Publishing Company awards a selected title from the Hornbook series to the student in each class who achieves the highest scholastic average.

Law School Alumni Appellate Moot Court Award—The Alumni Association of the Law School annually awards a prize of \$200 to be divided between the winning teams in the Appellate Moot Court Competition. Plaques are given to the team members who submit the best brief in the Junior Competition.

Robert S. Marx Prize Award—At the discretion of a committee set up for this purpose, awards of varying amounts may be made for the best work in advocacy and trial practice.

Judge John R. Murphy Award—A \$100 prize is awarded annually to the student whose seminar paper exhibits the highest quality of legal scholarship. The award, supported by the Law School Fund, was established in 1974 in memory of Judge John R. Murphy, an alumnus, an adjunct professor at the Law School, and the youngest jurist ever to serve as Executive Judge of Recorder's Court.

Phi Delta Delta Award—The Detroit chapter of Phi Delta Delta makes an annual award to a graduating woman student for outstanding achievement.

The Edward H. Rakow Memorial Fund—This fund was established in memory of Edward H. Rakow by the Federal Bar Foundation of Detroit to promote interest in securities regulation. An award is made each year to a junior or senior law student on the basis of need and scholarly achievement in corporate and securities subjects.

Renfrew Prize in Legal History—Established by James Renfrew, class of 1950, an annual prize of up to \$1,000 will be awarded for an original essay or essays of publishable quality dealing with American, English, or Continental legal history.

Samuel Schwartz Memorial Scholarship Fund—The Samuel Schwartz Memorial Prize, an annual award of \$75, is given to the author of the outstanding student contribution to the *Wayne Law Review* in the fields of labor relations law, workmen's compensation law or unemployment compensation law. Mr. Schwartz was a 1952 graduate of the Law School.

Scholarship Keys—Gold and silver keys are awarded to seniors who have demonstrated outstanding academic achievement; silver and bronze keys are awarded to juniors; bronze keys are similarly awarded to freshmen.

United States Law Week Award—A year's complimentary subscription to *Law Week*, a prize of approximately \$190 value, is given to the graduating student in law who, in the judgment of the faculty committee, has made the most satisfactory scholastic progress in his final year.

LAW SCHOOL ACTIVITIES

PLACEMENT SERVICE

The Placement Service provides a register for students and graduates to assist them in getting suitable positions. Lawyers, governmental agencies and corporations are provided with office facilities at the School in which to conduct interviews with applicants. The Placement Office receives strong support and cooperation from the Law School Alumni Association and many individual alumni. Wayne's unique geographical location in a tri-county area that contains approximately 9,000 attorneys provides many opportunities for summer clerkships.

The Director is available by appointment for assistance in preparing resumes, and job and career counseling. Students desiring to avail themselves of the Placement Service must register with that office.

LAW ALUMNI ASSOCIATION

The Law Alumni Association, consisting of approximately 4500 members, is involved in continuing educational, professional and social programs. As a service to the Law School, it provides lawyers to judge in the Moot Court competitions as well as advisers to assist students with their placement and professional problems. The Association conducts a series of mini-seminars on current legal topics and sponsors other education programs of interest to the legal community. It provides financial assistance for various activities of the Law School and serves as the focus for alumni, student and faculty cooperation.



THE COMMITTEE OF VISITORS

The Law School benefits from the concern, inspection and advice of a Committee of Visitors composed of leading lawyers and judges. The Committee meets annually at the Law School, reviews its programs and its problems, and offers constructive recommendations.

CONVOCATIONS

The Law School holds an Honors Convocation each year to honor students who have received scholarships and awards for academic achievement, and those who have been granted special awards and prizes for meritorious work in various law school activities such as Law Review, Moot Court, Free Legal Aid Clinic, and Student Board of Governors.

In June, a Senior Convocation honors the graduating class, calling special attention to those graduates who by scholarly achievement have won scholarship keys and degrees with honors.

STUDENT ACTIVITIES

WAYNE LAW REVIEW

The *Wayne Law Review* — a scholarly journal containing articles by leading jurists, law teachers, lawyers, and students at the Law School — is published five times annually. One issue is devoted to an annual survey of Michigan Law which, over the past several years, has gained wide recognition and approval from members of the legal profession throughout Michigan. Junior members are chosen on the basis of academic performance and writing ability. The Editorial Board is chosen from the senior members by the outgoing Board. *Law Review* offers an excellent opportunity for improving research, writing and editorial skills and contributing to legal literature.

MOOT COURT

The Moot Court Board assumes responsibility for running the moot court program. Members of the board are selected on the basis of academic excellence and proficiency in the moot court competition. The board members select and prepare case problems for argument, advise the competing teams, judge the briefs and oral arguments, and administer the entire program. Active participation on the board is rewarded by honors recognition on the student's permanent law school record.

The moot court competition is conducted under the auspices of the Moot Court Board. In the day school, participation is mandatory in the first year, and optional thereafter.

The competition introduces the students to the art of effective advocacy. In teams of two, the first-year students prepare briefs and present oral arguments on problem cases of current legal interest. The judges, drawn from members of Detroit law firms, the law faculty, and the Moot Court Board

subject the competing teams to the rigorous questioning traditional in American appellate practice. Two teams are selected from winners in the second-year competitions to argue against each other before a panel of distinguished judges as part of the Law School's annual Law Day celebration. Prizes are awarded to the finalists by the Law School Alumni Association, and the Robert S. Marx Fund. The third-year National Team represents the School in the regional round of the National Moot Court Competition. Victors in the regional round go on to represent their school in the National Competition held each year in New York City.

ORDER OF BARRISTERS

The Order of Barristers is a national honorary organization whose purpose is the encouragement of oral advocacy and briefwriting skills through effective law school appellate moot court programs. The Order also serves to recognize, on a national basis, those individual law students who have excelled in moot court activities in their respective law schools.

FREE LEGAL AID CLINIC

A student-run organization, the Free Legal Aid Clinic provides free legal services to indigent Detroiters in both criminal and civil cases. The students, supervised by faculty approved practicing attorneys, are permitted by Michigan Court rules to represent their clients in courtroom hearings.

STUDENT BAR ASSOCIATION

The Student Bar Association is a member of the Law School Division of the American Bar Association.

All general student activities are the initial responsibility of the Student Bar Association to which all students belong. The Association sponsors special convocations on current topics of interest, holds faculty-student social affairs, places student members on student-faculty committees and annually publishes a student directory. The Student Board of Governors of this organization is composed of an elected representative of each day and evening class and major student organization, and a four-man elected executive board. Meetings are held weekly at which all students are welcome. The board serves as a liaison between students, faculty, and administration.

OTHER STUDENT ORGANIZATIONS

The Law School has active organizations of The Black Legal Alliance of Wayne State University, La Ley Student Association, The National Lawyers Guild, and the Women's Law Caucus. Several active professional legal fraternities and oronities provide social and educational activities for their members.

COURSES OF INSTRUCTION¹

A schedule of courses and instructors for each academic year will be issued by the Law School prior to the time for registration. This schedule lists the days and hours at which classes meet.

The following description of courses is intended only to convey a general idea of the range of instruction offered at the Law School and is subject to change.

Basic Law (BL)

First Year

The first year program is prescribed for all J.D. candidates.

0600. Civil Procedure. Cr. 3-9 (9 required).

Structure of the judicial system in the United States and the process of civil litigation from the commencement of an action through appeal. Subjects considered include jurisdiction, the relationship between state and federal courts, pleading, discovery and other pre-trial devices, trial, and appellate review. Professors Carty-Bennia, Hetzel, A. Lombard.

0602. Contracts. Cr. 3-9 (9 required).

General principles of the law of contracts: definition of contract; offer, acceptance and consideration; capacity to contract; illegality, mistake, frustration, impossibility; Statute of Frauds, interpretation; the parol evidence rule; performance and breach; rescission, repudiation and discharge. Remedies, including damages, specific performance, injunction and restitution. All topics will be considered from the viewpoint of both common law and statute. Professors Eisler, Friedman, Harbrecht and Tierney.

0603. Criminal Law. Cr. 4.

General doctrines of criminal liability as they relate to the moral and social problems of crime; definitions of principal crimes and defenses to criminal prosecution, both common law and statutory; limitations on the use of criminal sanctions. Professors Barkai, George, Lamborn, Tierney and Wise.

0604. Legal Writing and Research. Cr. 2-6 (6 required).

Analysis of legal problems and the use of legal materials, through discussion, written assignments, and personal conferences. Preparation of an appellate brief and oral argument of a selected civil or criminal case before a court composed of faculty or members of the local bench and Bar.

0605. Property. Cr. 3-9 (9 required).

A basic course in real property, which will include selected materials from some of the following areas: Historical introduction to real property with detailed consideration of the modern law of possessory estates, methods of creating them, their nature and characteristics, including non-freehold estates; landlord and tenant, their nature, creation and characteristics, and the rights, duties and liabilities arising from the landlord and tenant relationship; concurrent estates; history and significance of the Statute of Uses, its effect on modern trusts, conveyancing, and future interests; restraints upon the use of land through private agreements, covenants and servitudes; conveyancing and effects of the Recording Acts upon conveyancing; land use planning and its relationship to the current urban crisis. Professors Lanning, Mogk and Plater.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

0606. Torts. Cr. 2-7 (7 required).

Legal principles underlying wrongs not based on contract, arising from intentional or negligent conduct and including strict liability; the nature of particular wrongs, including injuries to the person, to reputation, to real or personal property, and to interference with business or family relations. Professors Littlejohn, F. Lombard and Slovenko.

Upper Class Program — Required Course

0601. Constitutional Law I. Cr. 5.

Problems arising under the Constitution of the United States, with particular attention to the nature of judicial review in constitutional cases and to the role of the judiciary in upholding the federal system. Professors Glennon, Grano, Kelman and Wise.

Electives

0594. Prosecutor Internship. Cr. 1.

Prereq: consent of adviser. Limited to second and third year students. May not elect any other clinical or internship program in the same term. Each student is assigned to an attorney on the appellate staff of the Wayne County Prosecutor doing extensive research and brief writing. Includes one- to two-week orientation period in which student is taken through actual steps in processing of cases. Credit is awarded when the supervising attorney certifies adequate completion of the internship. Dean Martyn.

0595. United States Attorney Internship. Cr. 1.

Prereq: consent of adviser. Limited to second and third year students. Students may not elect any other clinical or internship program in the same term. Student's work with a staff attorney includes a large measure of vigorous legal research and drafting of legal documents in a wide variety of civil and criminal cases, both at trial and appellate levels. Credit is awarded when the staff attorney certifies adequate completion of the internship. Dean Martyn.

0596. Multi-Party Litigation. Cr. 3.

Prereq: B L 0600. Advanced study in civil procedure for second and third year law students. Class actions, multi-district litigation, third-party practice, interpleader, and problems arising from mass torts.

0597. Public Employment Labor Relations. Cr. 3.

Prereq: B L 0651. The law of labor relations in the public sector. Content and implementation of federal, state and local legislation and executive orders. Questions of representation, management structure, scope of duty to bargain, process of negotiation, union security, the right to strike and picket, impasse resolution, and the political and civil rights of public employees. Professor Diggs.

0598. United Nations Law. Cr. 3.

Basic constitutional problems of the United Nations through examination of its primary organs and the U. N. Charter. Peace keeping operations, double veto, and changing roles of the General Assembly and Security Council in international disputes. Selected problems such as the Suez Canal case, Congo case, Cuban missile crisis case, and Czechoslovakian intervention case. Current issues will be explored.

0599. Problems in Commercial Law. Cr. 3.

Prereq. or coreq: B L 0667. Negotiating, drafting and enforcing secured loan documents and other financing devices for both real

and personal property; the impact of the Bankruptcy Act and recent constitutional decisions. Professor Dolan.

0609. Introduction to Law. Cr. 1.

Structure of legal system; international, federal, state and municipal; sources of law; treaty, custom, statute, judicial decision; legal process and reasoning; Constitutional considerations; court jurisdictions, hierarchy; precedent and stare decisis; retroactivity; distinctions between civil and criminal law; methodology of legal research. Professor Tierney.

0610. Clinic in Employment Discrimination Law. Cr. 3-12 (12 required).

Prereq: consent of instructor. A year-long election; must be taken both terms. Law and practice of employment discrimination litigation. Course work on the substantive law; clinical work on class action and individual cases in various stages of administrative proceedings; trial and appellate court litigation. Techniques of investigating and evaluating charges of discrimination; drafting complaint; discovery; trial preparation; trial work; brief writing; and appellate work. Participants will devote the equivalent of two full days each week to clinic work.

0611. Management of the Legal Entity. Cr. 1.

Organization and administration of the small law firm and principles of management as applied to law firms; review of the office manual, nonlegal personnel, office layout, insurance, filing and equipment, accounting, fees and billing, comparison of the types of arrangements — solo practice, partnership, office sharing and professional corporations. Most meaningful to seniors who intend to go into private practice by themselves or with a small firm. Professor Anderson.

0612. Michigan and Federal Procedure. Cr. 3-4.

Prereq: B L 0637. Not open to students who have taken Basic Law 0694 and 0695. Michigan statutes, court rules and cases pertaining to appellate procedure, including jurisdiction, commencement of an action, pleadings, pre-trial procedure, motion practice, trial, verdict and appeal in civil cases. Parallel provision of federal statutes and court rules used as basis for comparative study.

0613. Criminal Procedure III. Cr. 5.

Criminal procedure after conviction. Sentencing, corrections, and prisoners' rights. Specific topics include legislative sentencing structure, pre-sentence investigation, sentencing decisions, theory and history of punishment, the place of imprisonment in the correctional system, prison classification, prison administration, judicial review of prison administration, discipline and inmate rights. Work and education release, parole and parole revocation, pardon and post-conviction disabilities. Professor Wise.

0614. American Legal History. Cr. 3.

Interplay between the legal system and society at large; the American Revolution and the framing of the U.S. Constitution; the law's role in economic development; race relations; judicial activism vs. judicial restraint; the development of civil liberties; the legal status of women; violence and the law. Professor Glennon.

0615. Administrative Law. Cr. 3-4.

Prereq: B L 0601. Powers and procedures of administrative agencies in the United States; methods of review and jurisdiction of the courts over administrative action. Professor Glavin.

0616. Admiralty Law. Cr. 3.

Admiralty jurisdiction; personal injury and death; charter party and bills of lading; collision and limitation of liability. Professors Hoppe.

0617. Antitrust I. Cr. 3 or 6.

Government control of trade practices and industrial market structures which inhibit the competitive process including a study of the problems raised by monopoly, oligopoly, mergers, cartel practices, distribution arrangements, resale price control, franchising patent licensing, foreign commerce and price discrimination under the Sherman, Clayton, Federal Trade Commission, and Robinson-Patman Acts. Professors Adelman and Huth.

0618. Antitrust II. Cr. 3.

Prereq: B L 0617. Treatment of distribution arrangements, resale price control, franchising, patent licensing, foreign commerce and price discrimination under the Sherman, Clayton, Federal Trade Commission, and Robinson-Patman Acts as well as antitrust in regulated industries and legislative proposals directed at restructuring certain oligopolistic industries. Professor Huth.

0619. A Transactional Approach to Business Planning. Cr. 6-12 (12 required).

Credit only on completion of two terms. Prereq: B L 0630 and 0671. Organizational problems for the closely held and the public corporation; operational problems such as stock distributions, issuance of new securities, constructive dividend problems, and stock redemptions; corporate acquisitions, other reorganizations, contested take-overs, and liquidation and termination problems. Professors Schenk and Schulman.

0620. Equal Employment Opportunity Law. Cr. 3.

Prereq: consent of instructor. Federal constitutional and statutory guarantees of freedom from invidious discrimination in employment. Includes thirteenth and fourteenth Amendments, Title VII of the Civil Rights Act of 1964, the Reconstruction Civil Rights Acts, 42 U.S.C. 1981, et seq., the Equal Pay Act of 1963, and the Age Discrimination in Employment Act of 1967. Professor Runyan.

0621. Clinical Advocacy: Criminal Defense Techniques. Cr. 10.

Prereq: B L 0633, 0637, and consent of instructor. Students represent indigent defendants in misdemeanors and work on felony cases. Class work and clinical training in investigation, preparation, and trial techniques; research on developing areas within the criminal justice system. Professor Barkai.

0622. Commercial Transactions. Cr. 6.

Not open to students who have taken Basic Law 0667 or 0699. A study of legal concepts involved in modern commercial transactions under the Uniform Commercial Code, with emphasis on the sale of, payment for, and financing of goods. Statutory interpretation. Professors Dolan and Zaretsky.

0623. Comparative Law. Cr. 3.

Comparison of the methods and sources of common and civil law; background and structure of the principal Civil Codes; analysis and study of problems arising in the context of foreign legal systems.

0624. Conflict of Laws. Cr. 2-6 (6 required).

Principles, rules and methods thought to underlie the resolution of multi-state problems. Jurisdiction and enforcement of judgments of other states. Professor Shuman.

0626. Constitutional Law II. Cr. 6.

Prereq: B L 0601. Individual rights under the Constitution of the United States. Freedom of speech, religious freedom and equal protection. Professors Friedman, Glennon and Zimmer.

8. Patents, Trademarks and Copyrights. Cr. 3.

Substantive patent, trademark, copyright, trade secret and misappropriation law covered in sufficient depth to provide back-

ground knowledge for those interested in the general law practice and to provide a foundation for future specialization. The central dilemma underlying the creation of property in intangibles. A technical background is not required. Professor Adelman.

0629. Corporate Mergers and Consolidations. Cr. 3.
Professor Schulman.

0630. Corporations. Cr. 3-6 (6 required).

Relationships between owners and directors of a corporate enterprise; different types of stock ownership and the corresponding rights in profits and control; consolidation and merger; distinctive features of the closed corporation. Professors Glavin, Harbrecht and Schulman.

0631. Creditors' Rights. Cr. 3-4.

Prereq: B L 0667, B L 0622, or consent of instructor. Problems arising when debtors are in financial difficulty, including the principal remedies of unsecured creditors such as attachment, garnishment, and enforcement of judgments; alternatives to bankruptcy; bankruptcy proceedings. Professors A. Lombard, Snider and Zaretsky.

0633. Criminal Procedure I. Cr. 3-5.

Prereq: B L 0601 recommended. Constitutional requirements for arrests, searches, seizures, electronic surveillance, and interrogations. Professors Borman, George, Grano and Lamborn.

0635. Equitable Remedies. Cr. 3.

Equity as a specialized mode of dealing with diverse legal problems, including the availability and characteristics of equitable relief and the enforcement of equitable decrees. Public law problems; injunctions as a method of dealing with picketing, pollution, improper governmental actions. Professors Carty-Bennia, Littlejohn and A. Lombard.

0636. Estate Planning. Cr. 2-6 (6 required).

Prereq: B L 0671; coreq: B L 0672 and 0689. Examination and analysis of factors which permit consideration in planning for the management and disposition of accumulated wealth. Special attention to the techniques and limitations suggested or imposed by laws of property, wills, corporations, partnerships, insurance, future interests and federal and state taxation. Professors Bartke and West.

0637. Evidence. Cr. 2-6 (6 required).

General principles relating to the proof of questions of fact in civil and criminal trials including competency, relevancy, and materiality of evidence; judicial notice, presumptions; burden of proof; competency of witnesses, rules relating to examination and cross-examination of witnesses; weight and sufficiency of evidence. Professors Eisler, Robinson and Slovenko.

0638. Family Law. Cr. 3.

Aspects of family law: illegitimacy, marriage, custody, divorce, adoption; the role of the lawyer as advocate or counsellor; the contributions of the social sciences. Professors George and F. Lombard.

0639. Federal Estate and Gift Taxation. Cr. 3.

Prereq: B L 0671. Federal taxation of inter vivos and testamentary transfers with emphasis on the controlling statutes, regulations and other interpretative materials. Professors Gordon and Gourwitz.

0640. Federal, State and Local Tax Relationships. Cr. 3.

Prereq: B L 0671. Federal, state and local tax relationships considering present methods of taxation and new measures to provide for adequate revenue. Professor Schenk.

0641. Free Legal Aid Clinic. Cr. 1-2 (2 required).

Students work in a Free Legal Aid Clinic representing indigent clients in need of legal services. Under supervision of a practicing attorney, students act as counsel from the interviewing stage through any necessary court proceedings. Professor Zaretsky, adviser.

0642. Future Interests. Cr. 3.

Open only to seniors. Not open to students who have taken Basic Law 0636. Wills and trusts in both large and small estates, including the modern heritage of the feudal land law, constructional problems, class gifts, powers of appointment, the rule against perpetuities and associated rules.

0643. Insurance Law. Cr. 3.

General principles, including indemnity, subrogation, reinsurance, insurable interest and classification of risks such as personal business and legal liability including products liability and professional malpractice liability. Michigan insurance law along with "no fault" legislation examined, as well as the contractual rights and liabilities of the insurer, insured and third party beneficiaries. Professor Saad.

0644. Appellate Advocacy. Cr. 3.

Prereq: B L 0600, 0601, 0603, 0604. Appellate procedure, skills of brief writing and oral advocacy, use of literature and law reviews before appellate courts, the functioning of intermediate and final appellate tribunals; examination of the work of leading appellate judges and judicial techniques for handling case and statutory authority. Professor Leitman.

0645. International Law. Cr. 3.

Basic legal concepts applied by international tribunals and courts of the United States to the relations between independent nations. The nature and sources of international law; the use of treaties; international organizations; and practices respecting recognition, territory, nationality and jurisdiction. Professor Wise.

0647. Judicial Internship. Cr. 1.

Prereq: consent of adviser. Each student is assigned to a participating judge and devotes approximately nine hours a week (twelve in summer term) to working with and for the judge as a law clerk, assisting in closely-supervised research on points of law and acquiring familiarity with the operation of the court. The student receives no letter grade, but is given credit for his work when the judge certifies adequate completion of the internship.

0648. Legal Philosophy I. Cr. 3.

Analysis of important legal notions such as law, sanction, rule, and sovereignty; relations between law and morals as seen particularly in the development of natural law and legal positivism and in the development of the notion of legal responsibility. Professor Shuman.

0650. Products Liability. Cr. 3.

Problems arising out of defective products. Warranty actions, strict liability in tort, damages, problems of proof, and other selected topics. Professor Zaretsky.

0651. Labor Relations and the Law. Cr. 3-6 (6 required).

Legislative, administrative, and judicial regulation of labor relations. The scope of national labor legislation; the protection of the rights of self-organization and the designation of bargaining agents; the negotiation and administration of the collective agreement; the legality of strikes, picketing and boycotts; employer interference with concerted activities; and the relations between unions and their members. Professors Bartosic and Zimmer.

0652. Land Use. Cr. 3-5.

Prereq: B L 0605. Allocation of land use in the urban environment by both private agreement and governmental order. Problems involved in the development and effectuation of community planning; goals by means of conservation, clearance, and renewal; zoning, variances and exceptions; housing code enforcement, subdivision control, eminent domain; and relocation. Professors Bartke, Callahan, and Strichartz.

0653. Law and Economics. Cr. 3.

No specific background in economics required. Recent developments in the application of economic analysis to legal doctrine. Property contract, tort, environmental and corporate doctrines from the point of view of welfare economics. Professor Adelman.

0655. Law Review. Cr. 1-2.

Open only to Law Review members. Professor Schulman, adviser.

0656. Legal Accounting. Cr. 3.

May not be taken for credit by those who have had any previous college work in accounting. Basic principles of accounting with special reference to situations encountered by practicing lawyers; emphasis on income measurement and related financial statement analysis. Professor Alvin.

0657. Legal History. Cr. 3.

General survey of Anglo-American legal history: the English background; reception of the common law in the United States; the codification movement; main movements in the law of the nineteenth century; the place of various law-making institutions in the growth of the law; Anglo-American law in comparison with the civil law tradition. Professor Wise.

0658. Legal Process. Cr. 4.

Functioning and interrelationships between the institutions and processes of the American legal system. Nature of legal reasoning, the uses and misuses of "stare decisis," the proper allocation of responsibility between the judiciary and the legislature, techniques of statutory interpretation, the role of administrative agencies, and the planning-advising function of lawyers. Professors Findlater and Kelman.

0659. Legislation. Cr. 5.

The legislative process and its use as an instrument for change; legislative drafting, revision, interpretation and implementation. The appropriations process; role of and control of lobbying; operation of the legislative process and its effect on policy formulation; conduct of Congressional investigations and effects of separation of powers doctrines. The lawyer and the development and implementation of legislation. Professor Hetzel.

0660. Local Government Law. Cr. 3-5.

Law as an instrument for governing urban areas. Distribution of decision-making power between private and public persons, between state and local governments and among various local governments. Local finance, decentralization, annexation and municipal incorporation. Explores possible reform by means of metropolitan government or federal assistance. The lawyer's role in formulating governmental policy in major urban complexes. Professors Strichartz and Hogg.

0661. Michigan and Federal Trial and Appellate Procedure. Cr. 3-6 (6 required).

Prereq: B L 0637. Not open to students who have taken Basic L 0694 or 0695. Michigan statutes, court rules and cases pertain to trial and appellate procedure, including jurisdiction, commencement of an action, pleadings, pre-trial procedure, motion practice, verdict and appeal in civil cases. Parallel provision of fede

statutes and court rules are used as a basis for comparative study. Practice court involving the trials of a civil or criminal case.

0662. Moot Court. Cr. 1-2.

Open only to members of the Moot Court Board, who conduct under general faculty supervision the program in the preparation of briefs and the hearings on oral arguments. Professor Dolan, adviser.

0663. Juvenile Courts. Cr. 3.

Prereq: B L 0633. Substantive law of delinquency, incorrigibility, dependency, and neglect; procedures utilized in the juvenile courts. Professor Lamborn.

0664. Professional Responsibility and the Legal Profession. Cr. 3.

Conflicts of interest; the attorney's standard of care, the attorney's fiduciary duty, the organization of bar associations, the attorney's duty to the community and the court; the attorney's responsibilities in trial, and in unilateral actions and negotiations. The duty of disclosure of adverse data, the development of group legal services, and of legal services to the poor, and the responsibility of the Bar in these areas. Judge Gilmore.

0665. Regulated Industry. Cr. 3.

Key concepts underlying regulations of public utilities, financial institutions, business of insurance, and communications -- including relation of federal-state regulatory authority, antitrust and regulation, various theories of economic regulation, and social and economic consequences of regulation. Professor Adelman.

0666. Restitution. Cr. 3.

The law relating to claims founded on the principle of unjust enrichment: quasi-contractual and equitable remedies in cases of fraud, mistake, ineffective agreement, duress, undue influence, and other wrongdoing, waiver of tort; liability to account for benefits received to another's use; unsolicited intervention in emergency situations; benefit from the use of another's ideas and intellectual property. Professor Wise.

0668. Securities Regulation. Cr. 3.

Analysis of current problems in federal and state regulation of transactions in securities. Professor Schulman.

0669. Tax Aspects of International Investment and Employment. Cr. 3.

Prereq: B L 0671. Not open to students who have taken Seminar Law 0665. United States taxation of non-resident aliens and foreign entities, foreign tax credit, determination of source of income, impact of tax treaties, earned income exclusion, tax effect of mode of operation and country of incorporation, and statutory and non-statutory tax devices available for international operations. Professor Schenk.

0670. Legal Philosophy II. Cr. 3.

Consideration of other subjects similar to those covered in Basic Law 0648. Professor Shuman.

0671. Taxation. Cr. 2-6 (6 required).

Introduction to the law of federal income taxation. Basic application of these taxes; problems involved in the variety of transactions and situations which confront the lawyer in general practice; analysis and use of materials which will permit solution of these problems. Underlying problems of policy which have led to the law of today and which may be expected to require change in the tax law of tomorrow. Emphasis on the interrelation between domestic tax policy and our basic governmental and social institutions. Professors Gordon, Gourwitz, Lanning and Schenk.

0672. Trusts and Decedents' Estates. Cr. 6.

Not open to students who have taken Basic Law 0689. Intestate succession, wills and trusts; requisite elements of wills and express trusts, and procedural requirements for their creation; administration of decedents' estates and trusts; special rules relating to charitable and spendthrift trusts; trust forms as equitable remedial devices under resulting and constructive trust rules. Professors Callahan and Plater.

0673. Poverty Law Litigation. Cr. 3.

Prereq: B L 0626 or consent of instructor. Constitutional, statutory, regulatory, and procedural questions arising in poverty law litigation. Pending cases and litigation strategies in welfare, housing, consumer and other poverty law areas. Professor Reed.

0675. Water Law. Cr. 3.

Categories of waterbodies and public and private rights therein under the riparian and the prior appropriation systems. Consumptive and non-consumptive uses, management, and protection of the resource. Intergovernmental relations with respect to water resource allocation and management. Professor Bartke.

0676. Welfare Law. Cr. 3.

Concentrated study of public-assistance and income maintenance, emphasizing recent and pending cases and the problems of work programs, eligibility conditions, food stamps, procedural rights, relationship between HEW and the state agencies, and federalization of the public assistance programs.

0681. Criminal Procedure II. Cr. 4-5.

Prereq: B L 0601 recommended. Operation of the criminal justice system from the defendant's first appearance in the court through the trial, and to post-conviction remedies, including a study of bail, the preliminary hearing, the grand jury, *voir dire* discovery, double jeopardy, joinder, and *habeas corpus*. Professors Barkai, Borman, and Lamborn.

0682. Land Financing. Cr. 3.

Methods of financing the acquisition and improvement of residential and commercial real estate through the use of private sources of funds.

0684. Business Planning and Taxation of Corporations and Shareholders. Cr. 6.

Prereq: B L 0630 and 0671. Advanced work in corporations and federal taxation in business planning and counseling; problems involving common business transactions, formation of corporations, stock redemption, sale and purchase of businesses, mergers and other forms of acquisitions, and recapitalizations, division, and dissolution of corporations.

0685. Problems in the Taxation of Corporations and Shareholders. Cr. 3.

Prereq: B L 0671. Federal income taxation of corporations and their shareholders; problems relating to the formation, operation, reorganization, and liquidation of the corporation. Problems that arise between shareholders and their closely-held corporation. Analysis and resolution of corporate tax issues. Professors Schenk and Tomasulo.

0686. Sex Based Discrimination. Cr. 3.

Laws from colonial times to the present as they relate to the status of women; family and welfare laws, criminal laws, the common law, and federal legislation. Academic and employment opportunities for women; the role of women in labor unions. Professor F. Lombard.

0687. Comparative Constitutional Law. Cr. 3.

Prereq: B L 0601. A critical and comparative analysis of leading

doctrines of constitutional law, such as enforcement of basic rights, judicial review, procedures to secure judicial independence, preventive detention, amendment of organic law with special reference to the Soviet, Indian, Japanese and European systems of law. Professor Jethmalani.

0688. Agency and Partnership. Cr. 3.

The relationship of principal and agent; the rights, duties, powers, and fiduciary responsibilities associated with acting for the benefit of others. The legal principles associated with conducting business in the partnership form under the Uniform Partnership Act. Professors Littlejohn and Zaretsky.

0690. Directed Study. Cr. 1-3.

Prereq: prior written consent of the professor directing the study and the Assistant Dean. The subject matter and the procedure guiding the study are to be arranged prior to registration.

0691. Tax Aspects of Real Estate Transactions. Cr. 3.

Prereq: B L 0671. The operation of the federal income tax as applied to real estate transactions. An intensive examination of selected areas, including the formation and liquidation of partnerships and corporations which own real estate, as well as leases, mortgages and sales. Professor Miro.

0694. The Lawyer as Civil Practitioner. Cr. 6.

Not open to students who have taken Basic Law 0695. Pre-trial lawyering skills and decision making in civil practice — legal and non-legal. Various roles lawyers and other participants in the civil process must perform: interviewing, investigation, counseling and negotiation techniques; use of pleadings in implementing a case.

0695. Clinical Advocacy: Civil Practice. Cr. 10.

Prereq: or coreq: B L 0637 and consent of instructor. Not open to students who have taken Basic Law 0694. Students represent indigent clients in a variety of civil problems such as landlord-tenant, consumer protection, welfare rights. Participation in civil liberties and other affirmative litigation designed to effect legal reform may be undertaken. Skills described in Basic Law 0694 will be considered. Students must be prepared to devote 15-20 hours per week to the clinic.

0696. Advanced Evidence and Trial Practice. Cr. 6.

Prereq: B L 0637. Evidence law in the trial context with emphasis on Michigan law. Extensive outside reading and preparation. Oral examination.

0697. Federal Courts and the Federal System. Cr. 4-5.

Prereq: B L 0601. Interrelationship of state and federal law in our legal system from the point of view of the federal courts and the Congress. Emphasis on the politics, history, and philosophy of federalism, rather than on procedures. Professor Kelman and Judge Feikens.

0698. Sales and Consumer Protection. Cr. 3.

Problems arising out of the sale of goods, including formation of the contract of sale, warranties of the seller, performance of the contract, risk of loss, and default.

0699. Commercial Paper, Bank Deposits and Collections. Cr. 3.

Not open to students who have taken Basic Law 0622. Use of notes and drafts (including checks), problems involving negotiability, the operation of our system for bank deposits and collections.

Seminars (S L)

Note: Some seminars may be offered as regular courses.

0600. International and Comparative Criminal Law. Cr. 5.

Criminal law and procedure of countries outside the Anglo-American tradition; the intellectual and sociological background of different systems of criminal law. Problems of international criminal law, (e.g., jurisdiction over crime, extradition, the prosecution of war criminals, and proposals for an international criminal court). Professors Jethmalani and Wise.

0601. Corruption and Organized Criminal Activity. Cr. 5.

Prereq: B L 0681. Organized criminal activity and corruption. Corrupt practices studied involve the political and judicial branches of government, and the police. Professor Borman.

0602. Current Constitutional Problems. Cr. 5.

Prereq: B L 0601 or equiv. Each student is required to produce a substantial paper dealing with a constitutional problem of special interest to him. Class sessions involve discussion of these papers, as well as other constitutional issues of current significance. Professor Glavin.

0604. Education and the Law. Cr. 5.

Lawyer's role in influencing policies and structural decisions related to education; contributions of other disciplines, as well as traditional legal materials. *De jure* segregation, *de facto* segregation, the financing of education, decentralization, community control, labor relations, rights of pupils, the role of private schools and church-state relations in education.

0605. Employment Discrimination. Cr. 3-5.

Prereq: consent of instructor. Professors Gitt and Zimmer.

0607. Housing for the Poor. Cr. 5.

The landlord-tenant aspect of the problem of adequate housing for the poor. Professor Callahan.

0608. International Law. Cr. 5.

Prereq: B L 0645. Advanced study in preparation of research papers on selected topics in international law. Professor Wise.

0610. Jurisprudence. Cr. 5.

Individual directed research and a detailed analysis of some specific jurisprudential topic. Professor Shuman.

0612. Labor Arbitration. Cr. 5.

Prereq: one course in labor law or labor problems, or consent of instructor. Development and role of arbitration in settlement of labor disputes involving grievances (rights) and new contracts (interests); arbitration in the public sector; economic criteria for wage arbitration; arbitration law; use and impact of arbitration in selected substantive areas, including race and sex discrimination; interaction of arbitration and other dispute settlement devices; procedural aspects of arbitration.

0622. Real Estate Transactions. Cr. 5.

Prereq: B L 0605 and 0671. Real estate transactions from the point of view of property law, governmental controls, financing requirements, and taxation. Identification of the various participants; their economic and legal problems. Professor Bartke.

0625. Psychiatry and the Law. Cr. 5.

Open only to third-year law students and psychiatric residents. Insights of psychiatry relevant to the law and the practicing lawyer. The dynamics of behavior, the theory and technique of it

interviewing, and forensic psychiatry issues, which include problems of mental hospitalization, personal injury, contractual and testamentary capacity, criminal law, and family law. Patients at Lafayette Clinic are presented and discussed. Professor Slovenko and Dr. Luby.

0626. Public Employment Labor Relations. Cr. 5.

Prereq. or coreq: B L 0651. The role of the law in regulating labor relations in the public sector. Content and implementation of federal, state and local legislation and executive orders. Questions of representation, management structure, the process and scope of negotiation, union security, the right to strike and picket, impasse resolution, and the political and civil rights of public employees. Professor Bartosic.

0627. Securities Regulation. Cr. 5.

Prereq: B L 0630 and 0668. Analysis of current problems in federal and state regulation of transactions in securities. Professor Schulman.

0630. Tort Principles and the Problems of Modern Society. Cr. 5.

Prereq: consent of instructor. Problems arising through urban living and their potential resolution through application of tort concepts. Selected topics are: the individual and the police (violation of civil rights); the individual and big government (right of privacy); the individual and big business (products liability); the individual and the professional (malpractice); and the individual and other individuals (slumlordism, nuisance); individual research in other areas permitted with approval of the instructor. Professor Littlejohn.

0631. Trial Techniques. Cr. 5.

Prereq: B L 0661. Students devote their time to the preparation and presentation of evidence on the trial court level, state and federal; to actual application of the rules of evidence; preserving all objections for a complete trial in order that an appellate court could review the entire trial. Emphasis is on demonstrative and real evidence, cross-examination of witnesses laying the foundation in order to qualify or impeach witnesses; authentication of written documents and conformity with The Best Evidence rule.

0632. Urban Housing and Community Development. Cr. 3-5.

Critical examination of the legal, social, and economic aspects of urban housing and community development, including local, state and national programs and policies. Professors Hetzel and Mogk.

0634. Urban Problem Solving. Cr. 8.

Prereq: consent of instructor. A field work seminar in which teams of students examine a particular urban problem as it exists in the Detroit metropolitan area. The teams work with the various actors who are involved in the problem with the objective of developing a set of recommendations for action. Professor Hetzel.

0636. The Law of Elections and Political Organization. Cr. 5.

Laws and constitutional regulations governing voting, the nomination and election of public officials, initiative and referendum process, campaign contributions, fair election practices, political parties. Professor Kelman.

38. Legal Treatment of Bad Luck. Cr. 5.

Government as an insurer of the general well-being; the law as a mechanism for the reduction and elimination of risk. Earthquakes,ricanes, floods, and other "Acts of God"; war, riot, and crimes and liabilities; social security and unemployment insurance; health and automobile accident insurance. The plight of individuals who are without legal remedy. Professor Tierney.

0639. Commercial Transactions Under the Uniform Commercial Code. Cr. 5.

Prereq: B L 0622. Special problems in commercial transactions. Professor Dolan.

0640. Criminal and Quasi-Criminal Law and Procedure. Cr. 5.

Substantive and procedural issues in criminal prosecutions, civil commitments, deportations, forfeitures, expulsions, and license deprivations. Professor Lamborn.

0641. Labor Law. Cr. 5.

Prereq. or coreq: B L 0651. Current labor law problems with emphasis on labor relations in the public sector, employment discrimination, internal union affairs, and myths and assumptions in labor law (the role of empirical research). Professor Bartosic.

0643. International Transactions. Cr. 5.

Prereq: B L 0623 or 0624 recommended. Problems presented by business transactions which cross national boundaries, including the conflict of regulatory laws. An introduction to transnational law and institutions.

0644. International Problems of Criminal Law. Cr. 5.

Prereq: B L 0603; B L 0645 recommended. Open only to third year and graduate law students. Jurisdiction, extraterritorial effect of penal judgments, extradition, international cooperation in criminal matters, international standards of due process, jurisdiction over servicemen in foreign countries, crimes against international law, war crimes trials, the Eichman Case, proposals for an international criminal court, and implications for the Vietnam conflict. Professor George.

0647. Law and the Behavioral Sciences: A Research Seminar. Cr. 2-5 (5 required).

Design of research projects involving methodologies and problems of the behavioral sciences when applied to socio-legal problems. Professor Shuman.

0648. The Individual and the Union. Cr. 3-5.

Prereq. or coreq: B L 0651. Legal bases for judicial intervention in internal union affairs, compulsory unionism, the right to admission and fair representation, civil liberties of members, disciplinary proceedings, financial administration, election of officers, trusteeships, racketeering, and political activities. Professor Bartosic.

0649. Freedom of Speech. Cr. 5.

Prereq: B L 0626. Reading classics pertaining to free speech (Zechariah, Chafee, Alexander Meiklejohn; others). Mock appellate arguments of pending and simulated free speech cases. Each student required to deliver one oral argument and to prepare one brief and one short judicial opinion.

0650. Scientific Experimentation on Humans. Cr. 5.

Questions such as when does a therapeutic intervention become experimentation, and how can and should medical experimentation be limited (legally and otherwise). Conventional topics such as hospital consents considered. Professor F. Lombard.

0652. Environment and Land Use. Cr. 5.

Prereq: B L 0605. Basic problems posed by the inter-related fields of environmental law and land use such as ecology and economics, energy and transportation, water and air pollution, open space, public participation, litigation's role. Ability of the law to deal with the major problem areas and their causes and cures, and will include practical research into Michigan practices. Professor Lanning.

0653. Federal Tax Policy. Cr. 5.

Prereq: B.L. 0671. A study of the tax reform hearings of 1973. Testimony of the eleven panels of experts. Fairness, cost-effectiveness, and administrative practicality of the various approaches suggested by these experts. Substitution of taxable subsidies, other non-tax benefits for tax incentives, and current administration proposals. Professor Tomasulo.

0654. American Legal History. Cr. 5.

Prereq: consent of instructor. Selected problems. Professor Glennon.

0656. Advanced Topics in the Legal Regulation of Competition. Cr. 5.

Prereq: B.L. 0617 or 0628 or 0665. Each student is required to prepare an in-depth paper on a topic of interest to him relating to subject matter covered by courses Basic Law 0617, 0628, or 0665. Class discussions will revolve around the topics covered by these papers. Professor Adelman.

0658. Law of Developing Nations. Cr. 5.

The reception of foreign laws by legal systems, using the position of the common law and the civil law systems in former Colonial territories as an example. The problems encountered as a result of the reception of the foreign law, using fields such as family law, wills, succession, and crimes as illustrated. The application of fundamental concepts in the "received" law and in the "local" law compared. Professor Marasinghe.

0659. Law and Bioethics. Cr. 3-5 (5 required).

Medical and legal problems, including the *medicalization* of morality, political psychiatry, peer review and human rights committees, informed consent, treatment of involuntarily detained patients, medical suppression of violence, human experimentation, and genetic manipulation. Provides law students with some background for the growing field in which lawyers will have a role to play in effecting a compromise between the need to protect personal freedom and society's use of science to manipulate behavior. Professor Shuman.

0660. Compulsion, Voluntariness, and Free Will in Criminal Law and Criminal Procedure. Cr. 5.

Prereq: background in philosophy and psychology recommended. A definitional study of the term "voluntariness" from the legal and philosophical perspective. The concept is analyzed in several areas, including consent searches, concessions, guilty pleas (plea bargaining), behavioral modification, the insanity defense, defense of duress. Professor Grano.

0661. The Corporation and Public Policy. Cr. 5.

Significant impacts of large American corporations upon the welfare of the public at home and abroad that have evoked legal responses such as antitrust, price controls, treaties, public subsidies, industry regulation, Comsat. Professor Harbrecht.

0663. Legal History. Cr. 5.

Selected cases in legal history. Professor Wise.

0664. Criminal Practice. Cr. 5.

Prereq: B.L. 0603, 0633, 0637, 0681. An in-depth examination of issues relating to criminal practice in the context of hypothetical cases. Issues studied relate to criminal law, constitutional criminal procedure, with emphasis on scientific evidence. Professor Borman.

0665. Taxation of Multinational Business. Cr. 3-5.

Prereq: B.L. 0671. Not open to students who have taken Basic Law 0669. Examination of the U.S. tax law and policies relating to foreign income of U.S.-based multinational companies and the U.S. source income of foreign-based multinational companies.

0666. Employment Discrimination Law and Practice. Cr. 5.

Concepts of "discrimination" as they have emerged in Title VII of the Civil Rights Act of 1964 and application to the numerous problems and various statutes applicable to employment. The procedural perils of employment discrimination litigation. A constitutional perspective will be developed as applicable to employment.

0667. Public Interest Environmental Law Seminar. Cr. 5.

Environmental law controversies from Michigan and elsewhere in the U.S.A., each involving a novel legal doctrine, administrative procedure, or litigation strategy. Emphasis upon maximizing the effectiveness of each student's analytical, creative, and presentational skills. Class presentation and written analysis. Professor Plater.

0668. Collective Bargaining-Labor Arbitration. Cr. 5.

Prereq: B.L. 0651. Simulation techniques to provide a realistic environment for negotiating and drafting labor contracts and for briefing and deciding arbitration cases. Professor Zimmer.

0669. Copyright Law and Intellectual Property. Cr. 5.

Prereq: consent of instructor. Copyright law, including its historical basis, operation, and proposals for its general revision. Selected legal problems arising from the production, marketing and distribution of literary, musical and artistic works. Professor Carty-Bennia.

0670. Selected Problems in Family Law. Cr. 5.

Dynamic principles of child development, custody, neglect and abuse; clinical experience at Children's Hospital. Professor F. Lombard.

0672. Multi-Party Litigation. Cr. 5.

Advanced study in civil procedure for second and third year law students. Class actions, multi-district litigation, third-party practice, interpleader, and problems arising from mass torts.

0673. Medical-Legal Problems. Cr. 5.

Current problems in medical malpractice law (arbitration and insurance) as well as issues arising from recent advances in biomedical technology (amniocentesis, fetal experimentation and biohazards). Professor Friedman.

Graduate Law (GL)

The following courses are primarily for graduate students, open to undergraduates only by special permission. In addition, graduate students may elect selected undergraduate law courses and seminars approved by their adviser. Permission may also be secured to take for credit, related graduate level courses in economics, business administration and similar areas.

Labor Law

Labor Law majors who have not had a basic labor law course in their undergraduate law program will normally be required to take G.L. 0806 before undertaking other graduate labor law courses.

0801. Arbitration of Labor Disputes. Cr. 3.

Prereq: consent of adviser. Study of labor arbitration, including grievance and interest arbitrations. Practice, policy questions at the impact of statutes.

0802. The Collective Bargaining Agreement. Cr. 3-6 (6 required).
Prereq: consent of adviser. The negotiation of collective bargaining contracts, including preparation and policy and other considerations. The legal rationale of the collective bargaining agreement, the legal rights and obligations it creates, and problems in the effectuation and enforcement of collective bargaining techniques.

0806. Labor Relations Law. Cr. 2.
Prereq: consent of adviser. The National Labor Relations Act, including the decisions of the National Labor Relations Board and decisions of courts in cases arising out of or related to the National Labor Relations Act. Analogous and comparable state statutes.

0809. Unemployment Compensation Law. Cr. 3.
Prereq: consent of adviser. Unemployment compensation law and practice, based on the Michigan statute, including federal relationships and a comparison with other state statutes.

0810. Wage and Hour Laws. Cr. 3.
State and federal wage and hour laws, including administration of the statutes and their interrelationship.

0811. Workmen's Compensation Law. Cr. 3-6 (6 required).
Prereq: consent of adviser. Study of workmen's compensation law and practice, based on the Michigan statute, including a comparison with other state statutes.

0812. Practices and Procedures Before the National Labor Relations Board. Cr. 3.
The representational and unfair labor practice areas.

0813. Special Problems Under the Taft-Hartley Act. Cr. 3.
Aspects of the Taft-Hartley Act of current concern in labor law.

Tax Law

Tax Law majors who have not had a reasonably current income tax course in their undergraduate law work may be required to take Basic Law 0671 prior to entering the graduate tax courses. They may earn partial graduate credit for this course.

0827. Executive Compensation Plans. Cr. 3.
Prereq: consent of adviser.

0828. Federal Income Taxation of Partnerships and Subchapter S Corporations. Cr. 3.
All aspects of transfer of property to partnership and subchapter S corporations; problems in connection with operations, and distribution of property and transfers of interest in partnership and subchapter S corporations.

0830. Federal Tax Practice. Cr. 3.
Prereq: consent of adviser. Procedure, both administrative and judicial, involved in the conduct of federal tax controversies.

0831. Income Taxation of Estates and Trusts. Cr. 3.
Prereq: consent of adviser. Rules of federal income taxation applicable to trusts and estates. Selected estate tax problems under existing tax treatment and with a view to considering possible changes in this area of the tax law.

2. State and Local Taxes. Cr. 3-6 (6 required).
Prereq: consent of adviser. The basic tax laws of state and local government, particularly property and excise taxes.

0834. Advanced Problems in Federal Income Taxation of Corporations and Shareholders. Cr. 3-6 (6 required).
Prereq: B L 0683 or 0685 within previous three years, or consent of instructor. Assigned problems. Stock redemptions; liquidations; reorganizations; stock dividends; dividends payable in cash and other property; accumulated earnings tax.

0835. Tax Fraud. Cr. 3.
Prereq: B L 0671. Federal civil and criminal remedies for fraudulent tax evasion.

Other Graduate Courses

0890. Directed Study in Law. Cr. 1-5.
Prereq: consent of adviser.

0899. Master's Essay Direction. Cr. 3.
Prereq: consent of adviser

Medical Jurisprudence

For students holding an M.D. degree, see page 206 for details.

Corporate and Finance Law

Students majoring in corporate and finance law may elect tax or labor courses.



FACULTY

ADMINISTRATION

Dean: Donald H. Gordon
Associate Dean: Edward J. Littlejohn
Assistant Dean: Susan R. Martyn
Assistant Dean: Barbara F. Klarman
Assistant Dean and Director of Placement Office:
 Russell M. Paquette
Director, Graduate Program: John E. Glavin
Director, Center for the Administration of Justice:
 B. James George
Registrar: Mary Louise K. Hall
Director of Admissions: June Hyvonen Plihal
Director, Law Library: Georgia A. Clark
Director, Legal Writing Program: Thomas R. Killian
Business Manager: Randall J. Wilger
Dean Emeritus: Arthur Neef

PROFESSORS

Martin J. Adelman, Richard W. Bartke, Florian Bartosic, Paul D. Borman, Kenneth R. Callahan, Robert E. Childs (Emeritus), Jane M. Friedman, B. James George, John E. Glavin, Donald H. Gordon, Joseph D. Grano, Paul P. Harbrecht, Otto Hetzel, Maurice B. Kelman, LeRoy Lamborn, Geoffrey J. Lanning, Edward J. Littlejohn, Arthur J. Lombard, Frederica K. Lombard, John E. Mogk, Alan S. Schenk, Stephen H. Schulman, Samuel I. Shuman, Ralph Slovenko, Richard Strichartz, Kevin H. Tierney, Norbert D. West (Emeritus), Edward M. Wise

ASSOCIATE PROFESSORS

John L. Barkai, Denise S. Carty-Bennia, John F. Dolan, Beth Ann Eisler, Cynthia E. Gitt, Robert J. Glennon, Jr., Zygmunt J. B. Plater, Michael J. Zimmer

ASSISTANT PROFESSORS

Janet E. Findlater, Barry L. Zaretsky

VISITING PROFESSOR

Ram Jethmalani

INSTRUCTORS

Stephen P. Gleit, Thomas A. Hendricks, David J. Hutchinson, Wilton J. Johnson, Barbara F. Klarman, Susan R. Martyn, William W. Pepper, Susan F. Reed

ADJUNCT FACULTY

Gerald Alvin, Gabriel N. Alexander, James E. Beall, J. Bruce Donaldson, George L. Downing, Emmett E. Eagan, The Honorable John Feikens, Joseph Galvin, The Honorable Horace W. Gilmore, Bernard Gottfried, Howard J. Gourwitz, William O. Hockhammer, George Hogg, Jr., Wolfgang Hoppe, William E. Huith, Bruce Leitman, Clunet Lewis, George Mager, Manabharana L. Marasinghe, Jeffrey H. Miro, Robert L. Reed, Joel Resnick, James K. Robinson, John R. Runyan, Henry W. Saad, Douglas A. Sargent, Kay Schloff, Robert Seymour, John W. Simpson, Jr., Lawrence K. Snider, M. Burns Stanley, Samuel Thomas, Jr., Nicholas Tomasulo, Steven Uzelac, Alan R. Waterstone, Douglas H. West

Law School Directory

Admissions

Juris Doctor 231 Law School; telephone: 577-3937

Advanced Degree . . . 395 Law School; telephone: 577-3955

Registration and General

Information 311 Law School; telephone: 577-3930

Placement Office (Law

positions only) 165 Law School Annex;
telephone: 577-3967

Mailing address for all Law School offices:

Law School, Wayne State University, 468 W. Ferry,
Detroit, Michigan 48202

College of Liberal Arts

DEAN: MARTIN STEARNS



Foreword

The College of Liberal Arts of Wayne State University offers students several unique educational opportunities.

Its location, near the center of one of the great metropolitan areas of the United States, makes it possible for students to participate in the many cultural and social activities of the city. This opportunity for student participation in the vast technical, social, and artistic ferment that so characterizes the modern world adds an operational dimension to the basic structure of their education.

The College of Liberal Arts at Wayne State University extends beyond the traditional liberal arts concept, interacting as it does with all elements of the University community. For example, superimposed on a quality undergraduate program are graduate programs leading to the master's and doctor's degrees in the various disciplines. In turn, these graduate programs offer more than opportunities for advanced study since they contribute directly to the total program of the College and thus enhance the quality of the undergraduate experience. Accordingly, professors teach both graduates and undergraduates; research projects involve both graduates and undergraduates. Some specialized classes are available to both graduates and undergraduates of the upper division, and this opportunity for informal association with graduate students and research personnel enriches the experiences of the undergraduate. Advanced and undergraduate studies within the College are interrelated so as to contribute to the education of students with specific professional interests as well as to the academic growth of those desiring a more general education.

The College program for the Bachelor of Arts degree is designed to lead to a broadening of intellectual horizons. The Liberal Arts College stimulates knowledge and understanding in the various areas of learning common to all human activity and gives the student freedom to select among diverse courses and programs as he matures intellectually. The College helps to develop in earlier studies the independence, resourcefulness, and judgment of the student so he subsequently may select with confidence advanced courses of study towards a career. The student should be educated in breadth, prepared for the changing circumstances of the future and imbued with the realization that his education is never completed, despite advanced training in a specialized field.

The College of Liberal Arts offers an extensive curriculum in the many areas of subject matter usually available only in a large university. For the student whose academic interests extend over several departments, the College curriculum has the necessary flexibility to meet his needs. Structural combinations, for example, those between psychology and sociology, biology and psychology, economics and mathematics, and others are available to students, as well as interdisciplinary programs such as American Studies, International Studies, Urban Studies, Social Science, and Physical Science. This interdisciplinary approach is also emphasized in the Honors Program available to selected superior students in the College.

Since many students graduating from college today will probably enter fields which are undergoing radical changes, a major goal of the liberal arts program must be to stimulate in each student resourcefulness, an understanding of change, and a respect for learning. The College attempts to familiarize its students with a variety of disciplines and to train them to cope with problems in a broad spectrum of fields. The curriculum is designed to enable students to have an understanding of areas other than their own and to be able to communicate with individuals in different disciplines.

The distinguished faculty of the College, representing a great diversity of backgrounds and interests, is engaged not only in teaching, but in research and creative activities. In classes ranging in size from large lectures to discussion groups the student finds a variety of ways of being involved in the activities of the classroom.

In summary, the College of Liberal Arts of Wayne State University offers students, in addition to a quality undergraduate program, a flexible curriculum, the opportunity to interact constructively with the many facets of a major university, the stimulation of exposure to, and participation in, the frontier areas of diverse disciplines, and the opportunity to engage in the cultural and social activities of a great metropolitan area.



ACADEMIC PROCEDURES

Undergraduate

For complete information regarding academic rules and regulations of the University, students should consult the General Information Section of this bulletin, beginning on page 5. The following additions and amendments apply to the College of Liberal Arts.

RECOMMENDED HIGH SCHOOL PREPARATION

Students who plan to enter the College of Liberal Arts as freshmen should have included in their high school programs at least three years of English, one year of algebra, one year of plane geometry, at least one course in a laboratory science, and at least two years of a foreign language. Some college programs require additional work in mathematics and science.

NORMAL PROGRAM LOAD

The requirements for graduation are based upon an average program of fifteen credits a quarter for twelve quarters, but the normal load shall not exceed eighteen credits.

Because two hours of outside preparation are normally expected for each class hour in each course, a fifteen credit program calls for approximately forty-five hours of class attendance and study per week. Students who undertake such a program should expect to give it their full time and energy. A few hours of employment a week may be safely added to this program by a capable student.

EXTRA CREDITS

Extra credits are any credits taken (auditing excepted) in excess of the normal load of eighteen credits. A student with a 3.0 honor point average may take more than eighteen credits only when his program has been approved by his adviser and the Dean.

RESTRICTIONS ON CREDIT

The College imposes the following three restrictions on credit:

Maximum Credits in One Subject — A student may not count as credit toward a degree more than sixty-eight credits in courses in any one subject except in special curricula in which additional courses are specified in the curriculum outline.

Over-Age Credits — A student attempting to complete a major after a protracted interruption in his education, or on a part-time basis over an extended period of time, may find that some of the early course work is out-of-date. In such cases, the department may require him to take refresher work or otherwise demonstrate his preparation for advanced courses in the department.

Restricted Courses — Degree credit is not given for elections in restricted courses which exceed the approved limit specified below.

Professional Courses

A maximum of twenty-four credits may be elected by any student from courses offered for degree credit by the several professional schools and colleges within the University. Twelve of these credits may be elected with the approval of a Liberal Arts adviser prior to the election of a major, and twelve additional credits may be chosen with the approval of the major department. Where Liberal Arts advisers have approved fewer than twelve credits, the major department may approve credit up to the twenty-four maximum credits allowed. If the student's curriculum specifically requires professional courses in excess of the maximum, additional credits may be elected.

Specialized Courses

Unless a curriculum specifies otherwise, the maximum amount of degree credit which may be earned in certain specialized areas is limited as follows:

Areas	maximum degree credit
Family and Consumer Resources	23
Hygiene	12
Physical Education and Dance (approved courses)	6
Applied Music (including the limitation stated in the paragraph below)	24

A total of not more than six credits from the following list of courses may be counted toward a degree unless a curriculum specifically requires more extensive elections:

Music 0280	University Band
Music 0281	University Symphony Orchestra
Music 0283	Men's Glee Club
Music 0284	University Choruses
Music 0285	Chamber Singers
Music 0287	Women's Chorale
Music 0288	Chamber Music and Special Ensembles
Music 0289	Symphonic Choir
Speech 0224	Forensic Practicum
Speech 0275	Radio, Television, Film Laboratory

Restrictions on Transfer Credit — No more than ninety-six credits (sixty-four semester credits) may be transferred from two-year colleges; moreover, once ninety-six credits (sixty-four semester credits) have been earned toward a degree, credit will not be granted for work taken at a two-year college.

PROBATION

If a student's work averages below 2.0, he will be placed on probation. If he incurs a serious honor point deficiency, he may be required to obtain permission from the Office of the Dean before registering. Such permission will be granted only after an interview with the student and some assurance from him that the previous causes of failure will not be operative in the proposed program.

Restriction — While on probation, a student may not represent the College in student activities.

Removal of Probation — A student will be removed from probation at the end of any quarter in which he achieves an over-all average of C or better for all the degree work he has taken in the College.

EXCLUSION

If a student on probation incurs a serious deficiency or if he fails to raise his honor point average within a reasonable length of time, he may be excluded from the College. Such an exclusion will be reviewed by the Probation Committee and the Dean upon the request of the student. After one year of exclusion, the student may apply for readmission to the College. The decision to readmit the student will be based upon evidence presented by the student that circumstances have changed during the year and that his probability of success has increased.

Cheating and Plagiarism — The principle of honesty is recognized as fundamental to a scholarly community. Students are expected to honor this principle and instructors are expected to take appropriate action when instances of academic dishonesty are discovered. An instructor may, when he discovers such instances, give a failing grade on the assignment or for the course. Serious acts of dishonesty may lead to suspension or exclusion.

The instructor has the responsibility of notifying the student of the alleged violation and the action being taken. Both the student and the instructor are entitled to academic due process in all such cases. Information on procedures is available in the College offices.

ATTENDANCE

Regularity in attendance and performance is necessary for success in college work. Each instructor at the beginning of the course will announce his attendance requirements.

RETENTION OF RECORDS

Term papers and examinations shall either be returned to the student or retained by the instructor for a minimum of six months. Thereafter they may be destroyed. Instructors shall retain grade books for at least five years following the end of a term and instructors who leave the institution shall give grade books for courses conducted during the past five years to their department chairman. Five years after the end of a course, grade books may be returned to the instructor or destroyed by the department.

STUDY ABROAD

For almost two decades, the University has provided its students with the opportunity to study abroad for a year or more in order to fully experience the cultural, academic, and soci-

life in a foreign country. Students in good academic standing may take, with the approval of their major departments, their junior year's work in Germany under the Junior Year in Munich or Freiburg Program. Six quarters of college German or the equivalent are prerequisite. Participants will earn credit for one academic year (September through July) as fully enrolled (matriculated) students at the cooperating Universities of Munich or Freiburg. Interested students should contact the Junior Year offices at 355 or 357 Manoo-gian or phone 577-4611.

HONORS

The Honors Program of the College of Liberal Arts is dedicated to the belief that the superior student needs opportunities for intellectual achievement which normally are not found in a traditional classroom situation. The lower division of the Honors Program consists of special honors sections in freshman and sophomore courses and a sophomore colloquium which is taken at the end of the sophomore year. Upon the successful completion of the lower division work, the student is eligible to enter the upper division which is composed of a departmental honors program and a general college honors program. The departmental honors programs vary from department to department, but they all include independent study or research, a senior honors essay, and one interdisciplinary seminar offered by the Honors Program. The general college honors program is composed of at least three interdisciplinary seminars and a senior honors essay. The honors student may enter either a departmental honors program or the general college honors program, or both. Upon graduation, the student's diploma indicates "with honors" in a department, in the general college program, or both.

Other features of the Honors Program include special advising, the waiving of certain prerequisites, guest lecturers, a study lounge, and an opportunity to participate in the Honors Action Association, an advisory student group.

Students who are interested in the Liberal Arts Honors Program should contact the Honors advisers at 577-3030. The Honors Program offices are located at 16.1 Library Court, 691 Merrick Avenue. For information on courses see page 336.

GRADUATION WITH DISTINCTION

A candidate eligible for the bachelor's degree may receive a special diploma "with distinction" or "with high distinction" under the following conditions:

Distinction — An honor point average of 3.3 if the candidate has earned at least 150 credits in residence, 3.4 if between 10 and 149 credits.

High Distinction — An honor point average of 3.6 if the candidate has earned at least 150 credits in residence, 3.7 if between 90 and 149 credits.

Combined degree candidates who have taken the first 135 credits in residence, the honor point average required for distinction is 3.3; for high distinction, 3.6.

For candidates who have less than ninety credits in residence and whose records indicate that the application of the foregoing criteria would be unjust, the Educational Adjustment Committee will make recommendations on the granting of distinction and high distinction.

PHI BETA KAPPA

Phi Beta Kappa, the oldest scholarship honor society in this country, dating from December 5, 1776, installed its one hundred and fifty-sixth chapter, Michigan Gamma, at Wayne State University on January 16, 1953, under a charter granted to the College of Liberal Arts of the University. Membership in the chapter is restricted to its charter members and to those members of the junior and senior classes of the College of Liberal Arts who have been elected to membership by the chapter and who have formally accepted election and participated in the initiation ceremonies of this or some other cooperating chapter. In addition, all members of the University staff who have been elected to membership by another chapter of Phi Beta Kappa automatically become affiliated members of the local chapter for the duration of their stay in the University.

Election to membership is restricted to students with at least two academic years of residence in the College of Liberal Arts of Wayne State University, and is based not only on high scholarship and integrity, but also on breadth and depth of program. Students who wish further information are urged to consult with the secretary of the chapter concerning the requirements.

BACHELOR'S DEGREE REQUIREMENTS

The College of Liberal Arts grants the following undergraduate degrees:

Bachelor of Arts

Bachelor of Science

Bachelor of Fine Arts

Bachelor of Music

Bachelor of Science in Biology

Bachelor of Science in Chemistry

Bachelor of Science in Computer Science

Bachelor of Science in Criminal Justice

Bachelor of Science in Family and Consumer Resources

Bachelor of Science in Physics

SCHOLASTIC APTITUDE TEST REQUIREMENT

In order better to advise students, the College requires all entering students, whether freshmen or transfers from other institutions, to take the *College Entrance Examination Board*

Scholastic Aptitude Test (SAT). If the student has not taken the SAT prior to admission, he must take the test during the first quarter in which he is registered.

ACADEMIC ADVISING

Freshmen and sophomores are required to consult advisers each time they register. A staff of academic advisers is available in the Liberal Arts Advising Office, second floor, Mackenzie Hall. Students should consult with advisers on all questions concerning degree requirements, academic regulations, course elections, and programs of study, and when they are having difficulties in their academic work. A student is not assigned to a specific adviser but may consult with one of his choice or with any adviser available. Freshmen and sophomores in some of the special curricula are required to consult departmental advisers or advisers in other colleges. The current *Schedule of Classes* names the advisers to be consulted.

Juniors and seniors are assigned advisers in their major departments, and their course elections in the last two years are arranged in consultation with these departmental advisers.

DEGREE CREDIT

A candidate for a Bachelor of Arts, Bachelor of Science, or any special degree must complete at least 180 degree credits of which a minimum of forty-five credits must be taken in residence in the College. Variations above this minimum depend on the requirements of each curriculum. (Degree credit is not given in restricted courses which exceed the approved limit. See "Restrictions on Credit," page 227.)

Combined Degree — A combined degree (B.A. or B.S.) is granted by the College of Liberal Arts in cooperation with approved schools of Dentistry, Medicine, and Law, which do not require a bachelor's degree for admission. A candidate for a combined degree must complete 135 credits in the College of Liberal Arts, all college requirements, and make reasonable progress toward completing a major. In addition, he must complete satisfactorily the first year's work in an approved professional school. A student who fails to pass any course ordinarily required during the first year of professional work forfeits the right to a combined degree. Such cases may be reopened only after the student completes the second year of professional work. Since the Wayne State University Law School now requires an undergraduate degree for admission, the combined degree with this school is not available.

Second Degree — A student who has received a recognized Liberal Arts degree from Wayne State University or any other accredited institution may obtain a second bachelor's degree in another academic area by registering in the undergraduate College. A graduate of Wayne State University, if his degree is from Liberal Arts, may be ranked as an undergraduate by declaring a new major and indicating his desire to earn a second undergraduate degree. Other Wayne State University graduates must obtain a transfer of college to Liberal Arts. A student from another institution must be admitted to the College by the University Admissions Office.

In order to be granted a second degree, the student must complete a minimum of forty-five credits beyond the first degree in the College and satisfy all College and major requirements. Generally, no second degree will be granted in the academic area in which the first degree was earned.

APPLICATION FOR DEGREE

See General University Information, page 18.

HONOR POINT AVERAGE

All students are required to maintain an over-all average of C (2.0 honor point average) for all degree work elected. See "Honor Point Average" in the General University Information section of this bulletin, page 17.

GROUP REQUIREMENTS

The group requirements are designed to introduce the student to a broad general education. Students should understand that satisfaction of the group requirements described below guarantees only a minimal acquaintance with the Liberal Arts disciplines represented. These requirements should be fulfilled principally in the first two years in college in order that the courses may serve as background for the major studies.

Students in the College of Liberal Arts must fulfill the following group requirements before their degrees will be granted.* A student may not use the same course to satisfy more than one of the group requirements.

Group One — English

Students must complete satisfactorily at least two courses (normally eight credits) in English. English 0150, Freshman Composition or its equivalent, must be taken by all students. Only after completing English 0150 or its equivalent and reaching the third quarter of the freshman year may students elect an 0200-level English course to satisfy the remainder of the group requirements. Any 0200-level English course is acceptable.

Those students whose scores on the English Placement Examination indicate need for instruction and practice in composition should elect English 0130, Composition Seminar, before they take English 0150.

Group Two — Foreign Language

Students must complete satisfactorily the study of one of the foreign languages through the level of the fourth course offered, normally fifteen to eighteen credits. Those continue the study of a foreign language begun in high school or

*The designation of specific courses to fulfill the different group requirements, is always under study and may be revised in later bulletin.

another college will be placed at the appropriate course level by the foreign language departments, usually on the basis of a placement test. The group requirement will be considered satisfied for those students whose test scores place them beyond the fourth level. For specific procedures, see the listing of the various foreign language departments in this bulletin.

Listed below are the languages which are regularly offered and which will meet the foreign language requirement:

- | | |
|-----------------------|------------------------|
| Arabic, see p. 365. | Italian, see p. 404. |
| Armenian, see p. 410. | Latin, see p. 325 |
| Chinese, see p. 365. | Polish, see p. 410. |
| French, see p. 400. | Russian, see p. 411. |
| German, see p. 402. | Spanish, see p. 406. |
| Greek, see p. 324. | Swahili, see p. 251. |
| Hebrew, see p. 365. | Ukrainian, see p. 412. |

Bilingual Students — The language requirement will be considered satisfied for the student who was born in and completed his secondary education in a country whose language is not English. However, no credit will be granted for elementary or intermediate courses in that language either through class work or by special examination.

Exceptions — Prospective candidates for the degree of Bachelor of Science should consult the major adviser or this bulletin for the language requirement for the degree. A foreign language should be elected and probably pursued beyond the fourth level course by students who intend to continue in graduate studies or to enter a professional school which requires foreign language.

Group Three — Natural Science

The student must complete satisfactorily four courses (normally sixteen credits) in the natural sciences, distributed as follows:

1. At least one course in the physical sciences.
2. At least one course in the biological sciences.
3. At least one of the four courses must be a laboratory course.
4. At least two of the four courses must be elected in one department.

The physical science requirement can be fulfilled by courses in the Departments of Chemistry, Geology, Physics and Astronomy, and Physical Science. Any two courses from Physical Science will fulfill the requirement of two courses taken in one department but only Physical Science 0193 and 0210 fulfill the laboratory requirement. The biological science requirement may be fulfilled by courses in the Departments of Biology and Psychology and certain courses in physical anthropology from the Anthropology Department. In the Psychology Department, only Psychology 0302 followed by

either 0305 or 0307 will satisfy the laboratory requirement. One mathematics course numbered 0179 or higher or one logic course (Philosophy 0221, 0520, 0535, 0539, 0540) or one computer science course numbered 0200 or higher may be substituted for a physical science course.

Group Four — Social Science

Students must complete satisfactorily four courses (normally sixteen credits) in the social sciences. Courses in at least two of the following departments must be elected to satisfy this requirement: Anthropology (except certain courses in physical anthropology), Black Studies 0390, Chicano-Boricua Studies 0201, 0241, 0242, 0243, 0311, 0312; Economics, Geography, History, International Studies, Political Science, and Sociology. Social Science 0191-0192 may also be used for partial fulfillment of this requirement.

Group Five — Humanities

Students must complete satisfactorily four courses (normally sixteen credits) in the humanities. Two courses must be taken in one department but no more than two courses in any one department may be applied toward fulfillment of the requirement. Courses which will satisfy this requirement are listed under the following departments: American Studies; Art and Art History; Black Studies 0490; Chicano-Boricua Studies 0210, 0211; Classics; English; Humanities; Music; Philosophy;* Speech Communication and Theatre; and any foreign language department (Greek and Latin, Near Eastern, Romance and Germanic, and Slavic).** However, not all courses in these departments may be counted toward fulfillment of the requirement. Courses in applied arts such as studio art, music theory and applied music, English composition, and applied speech techniques are not acceptable. Students should consult an adviser before registering for any course to be certain that it will earn credit toward fulfillment of the group requirement.

University Requirement in American Government

See General University Information, page 14.

CURRICULUM REQUIREMENTS

A curriculum usually designates the student's general area of interest or his eventual professional choice. By choosing the General Curriculum, however, the student indicates only that he intends to take a degree in one of the departments of the College or that he has not yet made a decision about his final goal. Since educational interests may change during the course of the student's college career, he may change his curriculum at any time by consulting an adviser.

*Except for Philosophy 0221, 0520, 0535, 0539, 0540.

**For courses presenting foreign literature in English translation in the foreign languages departments, see the specific departments.

Some of the curricula outline a specific program of study to guide the student. Others are governed only by the group requirements and the future major requirements and recommendations. Group, curricular, and major requirements may be modified from time to time during the student's course of study and students should periodically consult with the appropriate adviser. Descriptions of the various curricula will be found in the Undergraduate Curricula section below.

MAJOR REQUIREMENTS

A major is a program of concentrated study in a department or area within the College. The specific course requirements for majors are listed in this bulletin under each of the departments or areas of the College. The student is expected to select an area of concentration during his sophomore year and to declare his major in the subject or field of his choice by the beginning of his junior year.

To declare a major, the student should consult the chairman of the department or area selected or his designated representative well in advance of his formal declaration, since the acceptance of the declaration of major is subject to the advice of the department concerned. An up-to-date cumulative record of the student's work should be obtained by the student from the Records Office and delivered to the department for its files. At the time of his formal declaration, the student must obtain the signature of the department chairman or his designated representative on the major declaration form and file the form in the Liberal Arts Advising Office. All courses elected or changed by the student after he declares a major must be approved by his departmental adviser.

The major must include at least thirty credits in one subject, exclusive of the introductory courses and inclusive of some advanced work. No more than sixty-eight credits in the major subject (including introductory courses) may be counted toward a degree.

Within the above limits, each major program has specific requirements and these requirements may from time to time be modified; therefore, it is the student's responsibility to obtain the current requirements from his major department.

For an interdepartmental or field major, the rule regarding minimum credits required in one subject is waived.

For majors which require intensive study in a particular subject, more than sixty-eight credits are allowed.

If a student wishes to declare a double major, he must obtain the approval of the chairman or delegated representatives of each of the departments in which he wishes to major. If he has already declared one major, he must still obtain the signatures from both departments when he declares his second major. His program authorizations must be signed, each time he registers, by an adviser in each major department. In order to graduate with a double major, he must fulfill the major requirements in both areas of concentration.

The student must complete all courses in his major with an over-all average of C (2.0 honor point average).

Combined Degree — A candidate for a combined degree is required to make reasonable progress toward the completion of a major. The major department decides which courses constitute reasonable progress. Upon completion of the specified courses, the department certifies that the major requirements have been met.

MAJORS AVAILABLE

Leading to a Bachelor of Arts Degree

American Studies	History
Anthropology	History Honors
Anthropology & Sociology	Humanities
Arabic	International Studies
Art	Co-Major Program
Art History	Italian
Biology	Labor Studies
Biology Honors	Latin
Black Studies	Latin Honors
Co-Major Program	Mass Communications
Chemistry	(including concentra-
Chemistry Honors	tions in Radio-Television-
Chicano-Boricua Studies	Film and Journalism)
Co-Major Program	Mathematics
Classical Civilization	Mathematics Honors
Classical Civilization	Music
Honors	Near Eastern Languages
Classics	Near Eastern Studies
Classics Honors	Philosophy
Computer Science	Philosophy Honors
Economics	Physics
Economics Honors	Polish
English	Political Science
English Honors	Psychology
Environmental Studies	Psychology Honors
Co-Major Program	Russian
Family and	Slavic Languages
Consumer Resources	and Literatures
French	Sociology
Geography	Spanish
Geography Honors	Speech
Geology	Urban Studies
German	Co-Major Program
Greek	Women's Studies
Greek Honors	Co-Major Program
Hebrew	

Leading to a Bachelor of Science Degree

Computer Science (as a second major)	Psychology
Geology	Unified Science
Mathematics	

Leading to a Special Degree

Art— <i>Bachelor of Fine Arts</i>	
Biology— <i>Bachelor of Science in Biology</i>	
<i>Bachelor of Science in Biology Honors</i>	

Chemistry—*Bachelor of Science in Chemistry*
 Computer Science—*Bachelor of Science in
 Computer Science*
 Criminal Justice—*Bachelor of Science in Criminal Justice*
 Family and Consumer Resources—*Bachelor of Science in
 Family and Consumer Resources*
 Music—*Bachelor of Music*
 Physics—*Bachelor of Science in Physics*
 Speech—*Bachelor of Fine Arts*

PROFICIENCY IN COMPOSITION

The College expects students to be able to communicate in writing at a level appropriate for college coursework. Through advisory placement based on the Scholastic Aptitude Test (SAT) score, the English Department offers each new freshman and transfer student an assessment of his ability in written communication. The student may elect courses on the basis of this assessment that will help him achieve the writing competence required by the faculty. Many students will reach the desired goal within the two course English group requirement.

The English Proficiency Examination in Composition exists to insure that all students reach the level of competence required. Students are notified of this requirement upon completion of sixty credits and should write the essay examination at the testing session following notification. Exact time and location are listed in the *Schedule of Classes* under Department of English. The failing student must register for English 0208, The Writing Workshop, in which he will receive instruction in writing. When a student passes the English Proficiency Examination, the College is notified that he has met the graduation requirement. Students may be exempted by the English Department from taking the Proficiency Examination because of their achievement in composition.

ADVANCED COURSES

At least twenty-two credits in courses numbered 0300 or above must be earned.

Combined Degrees—Courses taken in the first year of professional school may be applied toward the required twenty-two credits in advanced courses.

RESIDENCE

The last forty-five credits applicable to the degree, not including credit by special examination, must be completed in an undergraduate college or school of Wayne State University. Credit by special examination, if taken during a quarter in which the student is registered, will not be considered an interruption of residence.

For the combined degree, the residence requirement must be completed in the College of Liberal Arts at Wayne State University prior to admission to the professional school.

SCIENCE REQUIREMENT FOR B.S. DEGREE

A Bachelor of Science degree requires a minimum of ninety credits in natural sciences, computer science, statistics, and mathematics. The sixteen credits which a student completes to fulfill the Natural Science Group Requirement are included in the ninety credits.

Combined Degrees—Students who are candidates for the Bachelor of Science on a combined degree must complete the required ninety credits, but the conditions vary as follows: pre-dental and pre-medical students must complete a minimum of sixty credits and pre-law students must complete ninety credits in natural sciences and mathematics before entering the professional school.

Special Degrees—Students who are candidates for the degrees of Bachelor of Science in Biology, Bachelor of Science in Chemistry, or Bachelor of Science in Physics must fulfill the ninety-credit requirement in natural sciences, computer science, statistics, and mathematics. Candidates for the other special degrees must complete the Natural Science Group Requirement and any additional natural science and mathematics courses required by the curriculum.



UNDERGRADUATE CURRICULA

Students who are uncertain of the procedure in curricular planning should confer with an adviser. In all curricula, the major is declared at the beginning of the junior year.

BASIC CURRICULA

General Curriculum

The General Curriculum leads to the degree of Bachelor of Arts or Bachelor of Science. Although it is designed for students who plan to elect a major in a department or area which does not require a special curriculum, it is an ideal choice for entering freshmen who have not decided on their plans of study.

In this curriculum a wide choice of courses in the arts and sciences is permitted. The elections suggested below for the first two years are planned to fulfill the Group Requirements, but the student may vary these elections with the consent of the academic adviser. The courses in the last two years are arranged in consultation with a major adviser.

Suggested Elections:

First Year		<i>credits</i>
English		4-8
Foreign Language		4-12
Humanities		4-12
Natural Science		4-12
Social Science		4-12
Electives		0-8

Second Year		<i>credits</i>
English		0-4
Foreign Language		4-12
Humanities		4-12
Natural Science		4-12
Social Science		4-12
Electives		0-12

Curriculum in Unified Science

The Curriculum in Unified Science is designed to give the student a comprehensive and integrated education in the sciences and mathematics leading to a Bachelor of Science degree. Its purpose is to provide a broad background rather than highly specialized training in a particular science. Students who plan to do graduate study in science, to enroll in professional schools in which training in science is requisite, or to teach science should consider this curriculum.

The curriculum requires 180 credits, including a minimum of ninety credits in the sciences, computer science, statistics, and mathematics and fulfillment of the College Group Requirements. Seventy-eight of the ninety credits must be earned in

five of the Departments of Biology, Chemistry, Geology, Mathematics, Physics and Astronomy, and Psychology. Thirty of the credits must be in a single department and at least twelve credits in each of four others. The student must also complete Mathematics 0211 or the equivalent. Elections in the junior and senior years are approved by the adviser in the department of greatest concentration.

Certain restrictions in choice are imposed in order to accomplish the objective of the curriculum. These include:

1. Courses that are offered specifically for non-science majors will not be accepted in fulfillment of either the thirty- or twelve-credit requirements. These courses include Physical Science 0191 and 0192.
2. Credit in Mathematics 0300 and in mathematics courses numbered below Mathematics 0211 may not be counted, with the exception of Mathematics 0180 or the equivalent, for which three credits will be allowed.
3. Students who choose a thirty-credit concentration in mathematics must include the basic sequence as listed in the Mathematics section of this bulletin.

The following is a recommended two-year program. For foreign language elections, the student should choose a modern language which has a substantial literature in scientific research. In mathematics or sciences, the student should choose courses which complement his field of major concentration (thirty credits) and the four fields of lesser concentration (twelve credits).

First Year		<i>credits</i>
English		8
Foreign Language		4-12
Humanities		4-12
Mathematics or Natural Science		12-20
Social Sciences		12

Second Year		<i>credits</i>
Foreign Language		0-12
Humanities		4-12
Mathematics or Natural Science		16-24
Social Science		4
Electives		5

PREPROFESSIONAL CURRICULA

Admission to a preprofessional curriculum implies only that a student has selected a professional goal. It does not necessarily mean that the student will be accepted by the corresponding professional college of his choice.

Pre-Anesthesia for Nurses

The College of Pharmacy and Allied Health Professions offers a baccalaureate degree in anesthesia for registered nurses with a preprofessional program taken in the College of Liberal Arts. Admission is open to registered nurses who have met the admission requirements for the College.

The following courses are taken in the College prior to admission to the professional program.

	<i>credits</i>
Biology 0103	5
Chemistry 0102, 0103, 0104	12
English 0150 and one 0200 level course	8
Political Science 0101	4
Psychology 0198	4
Social Science Elective	4
Speech 0200	4
Humanities Elective	4

Thirty credits may be earned by taking an examination in medical-surgical nursing.

Pre-Business Administration

The School of Business Administration is a professional school concerned with instruction in the theory and practice of business administration. The undergraduate program begins after students have acquired an educational foundation during the freshman and sophomore years in the basic sciences and the arts. The following courses are completed in the College of Liberal Arts prior to admission to the School of Business Administration:

Accounting	three quarter courses or two semester courses in principles (Accounting 0310, 0311, 0312 or 0313, and 0351)
Computer Science	Computer Science 0201
Economics	two courses in principles (Economics 0101 and 0102)
English	two courses in composition (English 0150 and 0209)
Mathematics	one course in college-level mathematics, algebra, finite mathematics, or calculus (Mathematics 0150 or 0151)
Psychology	one course (Psychology 0198)
Sociology	one course (Sociology 0201)
Speech	one course in public speaking (Speech 0200)
Statistics	one course (Economics 0520 for pre-business students; Finance and Business Economics 0530 for students admitted to the School)
Humanities	two quarter courses or one semester course selected from the following areas: American studies, art, art history, classics, English (beyond English requirement), foreign language (beyond first year), humanities, music, philosophy, theatre.
Natural Science	two quarter courses or one semester course selected from the following areas: astronomy, biology, botany, chemistry, geology, mathematics (beyond mathematics requirement), physical science, physics, zoology.
Social Science	two quarter courses or one semester course selected from the following areas: anthropology, geography, history, (not religion), political science (see American Government, page 14), psychology (beyond the introductory course), social science, sociology (beyond the introductory course).

Pre-Dentistry

Most schools require the following courses for admission:

	<i>credits</i>
English	12
Biology or Zoology with laboratory	12
Chemistry: Inorganic with laboratory	12
Chemistry: Organic with laboratory	12
Physics with laboratory	12

Students should consult a copy of *Admission Requirements of American Dental Schools*, available for use in the Liberal Arts Advising Office, for the specific requirements of the schools of their choice and for suggested electives. Although two years of Liberal Arts courses (ninety credits) is the stated minimum requirement for admission to most dental schools, the majority of students who enter have earned a baccalaureate degree.

Students who are interested in a combined degree with the College of Liberal Arts should refer to page 230 for modification of the regular requirements for degrees.

Pre-Education

— See page 240.

Pre-Law

Since the requirements for admission to law schools vary from school to school, the student should familiarize himself with the requirements of the school he plans to enter.

For admission to Wayne State Law School, the applicant should have a bachelors' degree from an accredited college with a strong grade point average. Although no specific courses are required, the faculty of the Law School recommends a strong background in English, with emphasis on grammar and composition, and in the social sciences. Within these fields, the choice of courses should be made in consultation with one of the academic advisers of the College of Liberal Arts. A suggested list of courses is as follows: Economics 0101, 0102, 0508; five courses in English; History 0105, 0204, 0205, 0516, 0517, 0553, 0554; Philosophy 0101, 0120; Political Science 0101, 0281, 0513, 0540, 0541; Psychology 0198; Sociology 0201, 0540. An introductory course in accounting is also recommended.

For students interested in the practice of law in commercial, corporate, and tax fields, the business administration curriculum may provide a good background.

Law School Admission Test — Each applicant for admission is required to take the Law School Admission Test given by the Educational Testing Service, Princeton, New Jersey. This test is given five times a year in Detroit and at one hundred or more examination centers located throughout the country. Application blanks and additional information may be obtained from the Counseling Services Office, Room 334, Mackenzie Hall.

Pre-Library Science

Positions in public, special, college and university libraries call for a broad undergraduate education. A bachelor's degree with a major in almost any department in the College of Liberal Arts, with the exception of studio art, applied music, or family and consumer resources would serve as suitable background for a student contemplating librarianship as a career.

It is recommended that the student elect Library Science 5497 (Introduction to Librarianship), Library Science 5495 (General Reference Service), and Library Science 6494 (Technical Services in Libraries). Library Science courses are open only to juniors and seniors, and credit for these courses is cognate to or supporting the major and may be authorized by the chairman of the major department.

Preparation for professional positions in libraries consists of a graduate course of study which leads to the degree Master of Science in Library Science. The program is offered by the Library Science Division, College of Education. Further information may be obtained from that department.

Pre-Medicine

The bachelor's degree is strongly recommended for admission to most schools of medicine, although some schools will consider applicants with unusually high academic attainment for admission after three years of undergraduate study.

Most schools require the following courses for admission:

	<i>credits</i>
Biology or Zoology (including genetics) and laboratory	12-18
Chemistry: Inorganic including qualitative analysis and laboratory ..	12
Chemistry: Organic with laboratory	12
Physics with laboratory	12
English	12-20

Students are urged to become familiar with *Medical School Admission Requirements* which summarizes entrance requirements and other information for medical schools in the United States and Canada. A copy is available for use in the Liberal Arts Advising Office.

The Wayne State University School of Medicine requires no more science subjects than those listed in the bulletin of the School. It is advisable, however, for students to take some mathematics and some additional biology including embryology. Students are encouraged to secure a well-rounded education and to follow a major course of study of their own choosing. The Admissions Committee is influenced by the scholarly approach of a student to his education, not by the area in which he chose to concentrate.

Pre-Medical Technology

The program leading to the Bachelor of Science degree in Medical Technology fulfills the requirements for medical

technology education of the Council on Medical Education of the American Medical Association. A graduate from Wayne State University with the degree of Bachelor of Science is eligible to take the national examination of the Registry of Medical Technologists of the American Society of Clinical Pathologists.

A student applying for acceptance into the preprofessional curriculum (freshman and sophomore years) in the College of Liberal Arts should have taken these courses in high school:

	<i>high school units</i>
Physics	1
Chemistry	1
Algebra	1½
Geometry	1
Trigonometry	½
Recommended: Latin, German or French.	

Since the College of Liberal Arts does not offer courses covering the first one and one-half units of work in algebra and geometry, entrance deficiencies in these subjects will have to be made up at a high school. Before the first course in college chemistry can be taken, the student must pass a mathematics placement test which covers two years of high school algebra.

A lack of any of the above high school units may extend the time required for completion of the courses prerequisite to beginning the professional curriculum in the junior year, or may restrict the electives which may be taken. Any entrance deficiencies should be made up as early as possible, preferably in the first year.

Admission to the junior year professional curriculum in the College of Pharmacy and Allied Health Professions is competitive and selective. Applications for admission to that program must be submitted to the Department of Medical Technology by April 15 of the year the student wishes to enter the professional program, since the professional year begins in September only.

Courses in this program are taken under direction of the College of Liberal Arts:

First Year

	<i>credits</i>
Biology 0103 and 0140 or 0220	9-10
Chemistry 0107, 0108	9
Chemistry 0110	4
English 0150	4
Medical Technology 0208..... Medical Technology Seminar	1
Physics 0213	4
Social Science Elective	4
Speech 0200	4

Second Year

Biology 0187	6
Chemistry 0224, 0519	8
English Elective	4
Humanities Elective	4

Mathematics 0180 (or equivalent)	5
Physics 0214	4
Social Science Electives	8
Electives	10-12

Pre-Mortuary Science

Wayne State University offers a three-year curriculum leading to a certificate in mortuary science. Before admission to the University's Department of Mortuary Science for the third or professional year, the student must have successfully completed at least seventy-eight of the ninety credits required in pre-professional courses, including the subjects listed below, and must have attained an over-all average of C (2.0 honor point average).

<i>Required Elections</i>	<i>credits</i>
English (two quarters)	8
Chemistry (General Inorganic) (two quarters)	8
Zoology or Biology	4
Social Science	8
Psychology	4
Mathematics or Accounting	4

Students who register in the College of Liberal Arts with the intention of completing the requirements for admission to the Department of Mortuary Science should consult with the staff of this department at 627 W. Alexandrine as early as possible.

Pre-Nursing

Students who wish to enter the College of Nursing must complete forty-four credits in the College of Liberal Arts, including courses marked by an asterisk, with grades of C or better. They must also qualify in mathematics.

<i>I. English and Communications</i>	<i>credits</i>
English 0150* and any English 0200 level course	8
Speech 0200	4
<i>II. Natural Sciences</i>	
Biology 0103* and 0220*	9
Chemistry 0102*, 0103*, and 0104*	12
Psychology 0198*, 0340, and Elective	12

III. Mathematics*

The mathematics requirement may be met by satisfactory completion of the mathematics qualifying examination, a grade of "S" in Mathematics 0090 or a college algebra course.

IV. Social Sciences — four courses

Social Science 0191* and 0192 or Sociology 0201* and Political Science 0101	8-10
Sociology Elective (0400-0600)	4
One course in the social sciences	4

V. Humanities — four courses

American studies, art history, classics, humanities, literature in any language, music history, Speech 0260, 0266, 0273, 0286, 0316, 0367, 0369, 0584, 0586, 0588, and 0719. Courses must be taken from at least two departments. One course must be in literature. One 3-4 hour studio course will also apply.

VI. Elective Sequence — four courses in one academic area of student's interest.

Pre-Occupational Therapy

The course of study in Occupational Therapy offered by Wayne State University is accredited by the Council on Medical Education of the American Medical Association in collaboration with the American Occupational Therapy Association and prepares the student to take the national certification examination of the American Occupational Therapy Association. The student is admitted to the professional occupational therapy program in the College of Pharmacy and Allied Health Professions at the beginning of the junior year through formal application procedures and completion of the preprofessional program. The following courses in the preprofessional program are taken under the direction of the College of Liberal Arts.

First and Second Years

	<i>credits</i>
Biology 0103	5
Biochemistry 0101	2
Chemistry 0101	5
Economics 0101	4
English 0150, 0209	8
English Literature electives (0200-0300 level)	8
Physical Science 0210	5
Political Science 0101	4
Psychology 0198, 0330, 0430	12
Philosophy 0120	3
Sociology 0201	4
Social Science Elective	4
Speech 0200, 0520	8
Electives	18
	<hr/> 90

Pre-Optometry

The pre-optometry requirements represent a minimum of two academic years of study, but specific requirements for admission to schools and colleges of optometry are not identical. Typically, the requirements include courses in English, mathematics, physics, chemistry, and biology or zoology. Some schools and colleges have requirements in psychology, the social sciences, literature, philosophy, and foreign languages.

Each student must inform himself of the entrance requirements of the professional school he plans to attend. Information is available in the Liberal Arts Advising Office; individual inquiries are invited by the American Optometric Association, Committee on Vocational Guidance, 7000 Chippewa Avenue, St. Louis, Missouri 63119.

Pre-Osteopathy

Students planning on a career in osteopathic medicine are encouraged to complete requirements for the bachelor's degree, although colleges of osteopathy may admit students with high academic achievement after three years in a liberal arts college. Course requirements for admission to the various schools differ and the student should inform himself of those of the professional school he wishes to attend. The addresses of the colleges of osteopathy are available in the Liberal Arts Advising Office.

Most schools of osteopathy require the following courses for admission:

	<i>credits</i>
Biological sciences: including zoology, comparative anatomy, embryology, and genetics	12-20
Chemistry: Organic	12
Chemistry: Inorganic including qualitative analysis	12
Physics	12

Mathematics and a modern foreign language are strongly recommended.

Pre-Physical Therapy

The program leading to the Bachelor of Science in Physical Therapy is offered by the College of Pharmacy and Allied Health Professions of Wayne State University in cooperation with the College of Liberal Arts. The program of study is approved by the Council on Medical Education in collaboration with the American Physical Therapy Association, and graduates are eligible to take physical therapy licensure and registration examinations.

It is recommended that students applying for admission to the preprofessional program in the College of Liberal Arts have the following high school courses: biology, chemistry, language, physics, geometry, and intermediate algebra. Applications to the third year professional curriculum must be submitted to the Department of Physical Therapy by April 15 of the year the student wishes to enter.

Courses in the preprofessional program are taken under the direction of the College of Liberal Arts:

First and Second Years

<i>Electives</i>	<i>credits</i>
Language, social science, or natural science recommended	12

English and Communications

English 0150	4
English elective	4
Speech 0200 or 0520	4

Humanities

Humanities electives	12
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Natural Sciences

Biology 0103, 0160, 0271	16
Chemistry 0105 or 0107 and 0108	8-10
Mathematics 0180 or 0178 and 0179	5-6
Physics 0213, 0214, 0215	12
Psychology 0198, 0330, 0340	12

Social Sciences

Political Science 0101	4
Sociology 0201	4
Anthropology 0211	4

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Pre-Radiation Therapy Technology

The Bachelor of Science Degree program in radiation technology offers specialization in radiation therapy technology which fulfills the requirements for certification as established by the Council on Medical Education of the American Medical Association in collaboration with the American College of Radiology and the American Society of Radiologic Technology.

At Wayne State University this program includes two years of preprofessional study in the College of Liberal Arts followed by two years of professional study and field experience in the College of Pharmacy and Allied Health Professions. Graduates are eligible to write the certification examination of the American Registry of Radiologic Technologists.

Students who plan to enter this program should include in their high school preparation at least three years of English, one year of algebra, one year of plane geometry, and at least one laboratory science, preferably two.

The courses in the preprofessional program are taken under the direction of the College of Liberal Arts.

First and Second Years

	<i>credits</i>
Biology 0103, 0160, 0271	16
Biochemistry 0101	2
Chemistry 0101	5
English 0150	4
Mathematics 0180	5
Orientation to Health Professions	1
Physics 0213, 0214, 0215	12
Political Science 0101	4
Psychology 0198, 0330	8
Speech 0200	4
Electives: Behavioral-Social Sciences	16
Humanities or Sciences	14

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Pre-Social Work

The School of Social Work offers opportunity for study at the undergraduate level to prepare students for practice in the profession of social work.

Ninety credits of work or equivalent at the freshman and sophomore levels must be distributed according to the following pattern as an admission requirement to the professional program in the junior and senior years.

A. Social Sciences — 24 credits to be distributed as follows:

Anthropology — 4 credits
Economics — 4 credits
History — 4 credits
Political Science — 4 credits
Sociology — 8 credits

B. Natural Science — 18 credits to be distributed as follows:

Biology — 3 credits
Psychology — 3 courses (generally 12 credits) Field Practicum Courses do not meet this requirement
3-5 credits to be selected from the following: Physical Science 0191, 0192, 0193, Chemistry; Geology, Astronomy; Physics, Mathematics above 0179

C. Humanities — 8 credits to be distributed as follows:

Philosophy — 4 credits
4 quarter credits to be selected from the following: Humanities, Classics, Music and Art History; Literature in a foreign language department, American Studies, English Literature

D. English — 8 credits to be distributed as follows:

Freshman Composition — 4 credits
English Elective — 0200 level or above

Electives — The student may select appropriate courses from any discipline in the College of Liberal Arts and in Monteith College divisional or interdivisional courses and from such professional schools as the College of Education, the School of Business Administration, the College of Nursing and the School of Social Work.

English Proficiency Examination — Although the English Proficiency Examination is not required for admission to the B.S.W. Program, students are encouraged to take the examination prior to making application to the program.

Degree Program for Bachelor of Social Work — The program of study which leads to the Bachelor of Social Work degree, consists of six quarters of study at the junior and senior years. During each year about one-half is in co-requisite courses and electives. One part of the professional component of the program is field work which is concurrent with class work. It is required that the student enroll in the entire professional component during any one quarter.

Usually the six quarter program of class and field work is a program of full-time study extending over two successive academic years, beginning in the Fall quarter. The number of students admitted to the program is limited.

Admission Requirements — Applications for admission to the program may be submitted after the student has completed sixty credits of work or equivalent at the freshman and sophomore levels. Applications for admission to the program leading to the Bachelor of Social Work degree must be submitted to the Office of Admissions, Wayne State University, Detroit, Michigan 48202. Students who have already attended Wayne State University should apply directly to the School of Social Work. Applications are reviewed only when all

supporting materials have been received and are then processed up to the enrollment capacity of the program. Deadline for submission of initial applications for September admission is May 31. Applications received after the closing date cannot be guaranteed processing, nor can applications for September admission be guaranteed processing if all supporting material is not received by June 30.

Each applicant to the professional program leading to the Bachelor of Social Work degree must meet the following requirements: (1) complete and forward to the Office of Admissions, Wayne State University, the form *Application for Undergraduate Admission* (students who have already attended Wayne State University omit this step); (2) complete and forward to the Office of Admissions, Wayne State University, the form *Admission to the School of Social Work, Supplementary Information Form*; (3) submit transcripts and other evidence that the student will at the time of his admission to the program have successfully completed a minimum of ninety credits of work or equivalent distributed as outlined below from a college or university of recognized standing; (4) have earned a minimum overall honor point average of 2.6; (5) show evidence of suitability for the profession and the ability to undertake successfully undergraduate professional education in social work.

TEACHER PREPARATION CURRICULA

Health Examinations — At the beginning of the freshman year, all students entering the University who are considering teacher education work should take the health examination. Students may wish to avail themselves of the services of the Speech and Hearing Clinic if they feel that they have defects which might impair their effectiveness as teachers.

With the exception of students who are planning to enter the Combined Curriculum, all students preparing to teach in one of the fields listed below will register in the College of Liberal Arts for their freshman and sophomore years and transfer to the College of Education at the beginning of their junior year. During the first two years, they will see the Liberal Arts academic advisers for general counseling. Application for entrance to the College of Education should be submitted after the completion of eighty credits in course work.

Combined Curriculum for Academic Studies

This curriculum leads to a bachelor's degree and a Michigan Secondary Provisional Certificate.

The Combined Curriculum for Secondary Teaching is offered in cooperation with the College of Education and prepares the student for teaching his major and minor subjects in the secondary school. In this curriculum the student takes his first two years of work in the College of Liberal Arts. His third and fourth years may be taken in either college depending on his choice of degree.

In electing courses during the first two years, the student should acquire a broad general education. In addition, he should begin electing courses that may be required by his future major department.

A student interested in this program should consult a Liberal Arts academic adviser who will give him a curriculum outline, provide guidance, and direct him to the adviser in his major at the beginning of his junior year.

Students may also go to the Division of Academic Services, Room 489, in the College of Education at any time during the first two years for consultation on professional programs they may be planning to pursue.

Degree in the College of Liberal Arts — The student remains registered in the College of Liberal Arts and elects a departmental major at the beginning of his junior year. However, after completing eighty credits in course work, he must apply to the College of Education for official admission to the combined curriculum for secondary teaching and *must be approved* by the College of Education as a candidate for teacher certification. During his junior and senior years his program requests will be signed both by his College of Liberal Arts major adviser and by the appropriate adviser in the College of Education.

Degree in the College of Education — The student applies for acceptance to the College of Education after completing eighty credits in course work, transfers to that College at the beginning of his junior year, and follows the degree requirements of the College of Education.

Students may find it desirable to remain in school for a fifth year and qualify for a master's degree, particularly if the supply of teachers in relation to the demand makes placement uncertain for the holder of a bachelor's degree only.

K-12 Majors

Students wishing to major in Art Education should see an adviser in Room 163, Community Arts Building.

Students wishing to major in Music Education should see an adviser in Room 105, Community Arts Building.

Students wishing to major in Physical Education should see an adviser in Room 263, Matthaei.

Students preparing to teach in bilingual classrooms should see an adviser in Room 212, Education Building.

Secondary Teaching

Students planning to teach English, foreign language, mathematics, science, social studies, or speech on the secondary level should complete in their first two years the following general education requirements:

College of Education general requirements: PSY 0198, HEA 0281, and three credits in Physical Education.

English/Speech Group: four courses, including ENG 0150, an 0200 level English course, SPH 0200, and an English or speech elective.

Social Studies Group: four courses from anthropology, economics, geography, history, political science, social science,

or sociology, including the American Government requirement.

Science Group: four courses, selected from AST 0201 and 0202, BIO 0100 and 0103, CHM 0100 and 0101, GEL 0100 and 0101, PHS 0191, 0192, and 0193, PHY 0106, or other science courses.

Pre-secondary students should also be electing courses in their proposed teaching major and minor. Major/minor worksheets may be obtained from Liberal Arts advising or in Room 212, Education Building.

Vocational and Applied Arts Education

This program is designed to prepare teachers for vocational education programs in business and distributive education, home economics education; family life education, and industrial education. Satisfactory completion leads to secondary certification in any one of the curriculum areas above. Those students who have also completed the required work experience coupled with the appropriate major or minor receive vocational endorsement in a specific occupational area. Those students who major in Industrial Arts do not receive vocational endorsement.

Students who major in any of the industrial-technical areas usually complete their major at a community college. They also have the option of taking the National Occupational Competency Examination if they feel that their experiences in a trade or technical area has given them the knowledge and skills required of a specialist. Successful completion of the National Occupational Competency Examination meets the requirements of a major area for certification purposes.

During the first two years, the pre-vocational and applied arts students acquire a broad general education. In addition, courses required by the future major curriculum area are also taken. During this period, students are encouraged to consult with an adviser in their major in the College of Education. Students who are completing their major at a community college are particularly encouraged to consult with such an adviser. For additional information regarding professional education and the major, refer to the College of Education section of this bulletin.

Teaching Minor — One minor of thirty-six credits is required. The recommended minor for all vocational majors is social science (i.e., anthropology, economics, geography, history, political science, sociology, and Social Science 0191-0192). Students who wish to select a minor in an area other than social science should discuss their interests with a major adviser.

Elementary Teaching

Those who wish to major in elementary education with an emphasis in nursery school may enter a combined curriculum with the Department of Family and Consumer Resources and should see an adviser in that department as soon as possible.

All other pre-elementary majors should include in their first two years work the following requirements:

College of Education general requirements: PSY 0198, HEA 0281, MAT 0111, 0112, and 0113, and three credits in Physical Education.

English/Speech Group: ENG 0150, an 0200 level English course, and SPH 0200. (TED 3321, Children's Literature, will be taken after admission to the College of Education).

Social Studies Group: four courses from anthropology, economics, geography, history, political science, social science, or sociology, including the American Government requirement.

Science Group: four courses, selected from AST 0201 and 0202, BIO 0100 and 0103, CHM 0100 and 0101, GEL 0100 and 0101, PHS 0191, 0192, and 0193, PHY 0106, or other science courses.

Humanities: HUM 0485 or equivalent.

Pre-elementary students should also be electing courses in their proposed teaching major and minor. Major/minor worksheets may be obtained from Liberal Arts Advising or in Room 212, Education Building.

Special Education

The curriculum in special education prepares teachers for work with exceptional children at all levels in day schools, residential institutions, and diagnostic-clinical centers. The undergraduate majors are: mentally impaired, physically impaired, visually impaired, multiply impaired, and speech impaired.

In the first two years of work, students should take courses to establish a thirty-six credit minor and the following general education requirements:

College of Education general requirements: PSY 0198, HEA 0281, MAT 0111, 0112, and 0113, and three credits in Physical Education.

Special Education requirements: BIO 0103 and HEA 0283.

English/Speech Group: ENG 0150, an 0200 level English course, and SPH 0200. (TED 3321, Children's Literature, will be taken after admission to the College of Education.)

Humanities: HUM 0485 or equivalent.

American Government: For those with a Social Studies minor, the American Government requirement will be included within the minor. Students with other minors must also meet the American Government requirement.

Students can obtain major/minor worksheets for Special Education in Room 212, Education Building.

Special Curricula

The special curricula offer a comprehensive background or specialized study in a major subject or area, and are available follows:

Leading to a Bachelor of Arts Degree

American Studies
Humanities
Mass Communications,
including concentrations in Radio, Television,
Film, and Journalism (See Speech Communication,
Theatre, and Journalism)

Leading to a Special Degree

Art	Family and Consumer Resources
Biology	Music
Chemistry	Physics
Computer Science	Theatre (See Speech Communication, Theatre and Journalism)
Criminal Justice (See Political Science)	

Course requirements vary with each curriculum. Exceptions are permitted to the College rules governing the minimum and maximum credits in the major subject and the maximum hours allowed in restricted courses if such exceptions are stated or implied in the curriculum requirements outlined in the bulletin. The special curricula are included in the departmental section beginning on page 245 and are followed by a description of the courses pertinent to the major.

ACADEMIC PROCEDURES

Graduate

For complete information regarding graduate rules and regulations, students should consult the Graduate Division section of this bulletin, beginning on page 19. The following additions and amendments pertain to the College of Liberal Arts.

REGULAR ADMISSION¹

— see page 19.

In the selective admission of graduate students, preference is given to those students who have achieved superior undergraduate scholastic records and who evidence superior abilities.

If a student's undergraduate preparation is considered deficient for advanced work in his graduate major field, additional work may be required at the undergraduate level. All prerequisite credits must be earned prior to or concurrent with the first graduate credits. Certain degrees have additional requirements as stated under Graduate Division.

GRADUATE RECORD EXAMINATIONS

These examinations are intended to assist the student and adviser in evaluating the student's educational preparation or to serve as bases for guidance in planning future study. Although these examinations are not required under any uniform policy throughout the Graduate Division, they are required of all majors in some departments and of students in certain classifications in other departments. The student should consult the department in which he proposes to major to determine whether or not he must take the examinations.

If a student is required to take such an examination, he must apply for it at the Testing and Evaluation Office, Room 343, Mackenzie Hall either prior to or at the time of admission. If he has previously taken the examination, he may have a transcript of his scores filed. After the first registration no subsequent enrollment will be permitted nor will candidacy be authorized until the examination requirement has been fulfilled.

GRADUATE DEGREES

Graduate degrees are conferred not merely upon the completion of a prescribed number of courses, nor necessarily after a given period of residence, but rather in recognition of each candidate's outstanding ability and high attainments as evidenced in all his course work, his research, his scholarly writing, his examinations, and his personal fitness for his profession.

¹ Wayne State University faculty members holding the rank of Assistant Professor or above may not be admitted to graduate degree programs in the University.

MASTER'S DEGREES AND MAJORS

Master of Arts — with majors in

Anthropology	History
Applied Mathematics	Humanities
Art	Italian
Art History	Latin
Chemistry	Linguistics
Classics	Mathematics
Comparative Literature	Mathematical Statistics
Computer Science	Music
Criminal Justice	Near Eastern Languages
East European Studies	Philosophy
Economics	Physics
English	Political Science
Family and Consumer Resources	Psychology
French	Russian
Geography	Sociology
German	Spanish
	Speech

Master of Arts in Teaching College Subjects or Fields — with majors in

English	Mathematics
Geography	Psychology
Humanities	Speech

The immediately preceding degree is offered by the departments and divisions of the College of Liberal Arts in cooperation with the College of Education.

Master of Fine Arts — with a major in Art

Master of Fine Arts — with specialization in Theatre

Master of Music — with a major in Performance, Theory, Composition or Music Education

Master of Public Administration — with a major in Public Administration

Master of Science — with majors in

Biology	Family and Consumer Resources*
Chemistry	Geology
Computer Science	Physics

Master of Urban Planning — with a major in Urban Planning

* Designation of the field is part of the degree title.

DOCTORAL DEGREES AND MAJORS

*Doctor of Philosophy —
with majors in*

Anthropology	Modern Languages
Biology	Philosophy
Chemistry	Physics
Economics	Political Science
English	Psychology
History	Sociology
Mathematics	Speech

MINOR OR COGNATE GRADUATE CREDIT

areas

American Studies	Greek
Aramaic	Journalism
Classics	Polish

Slavic (except for East European Studies majors who may earn major credit)

REQUIREMENTS

for Graduate Degrees

GENERAL REQUIREMENTS

General requirements for graduate degrees may be found in the Graduate Division section of this bulletin, beginning on page 19. In addition to these and to the information below, other requirements are specified by the individual graduate departments. The student should consult the program and requirements of the department in which he plans to major.

CANDIDACY

Candidacy is an advanced status which is recommended by the student's adviser and authorized by the Office for Graduate Studies or Liberal Arts Graduate Office upon evidence of the applicant's superior scholarship, appropriate personal qualities, and promise of professional competence. To be eligible for candidacy, the student must file an officially approved *Plan of Work*. The *Plan of Work* should provide for effective concentration in a major field, with properly supporting courses in related fields. Ph.D. applicants should file this *Plan* with the Office for Graduate Studies; master's applicants with the graduate officer of the College. In preparing his *Plan*, the student should evaluate with care his personal and professional objectives as well as all degree and departmental requirements.

Submission as an applicant does not assure acceptance as a candidate for a degree. Candidacy is a necessary but not sufficient requirement for graduation.

Normally, students enrolled in master's degree programs are expected to file a *Plan of Work* by the time the equivalent of twelve to eighteen graduate credits have been earned. The applicant should petition his adviser to advance his rank to "candidate." In most departments candidacy must be authorized by the time eighteen graduate credits have been earned or subsequent registration is denied. *Plans* are filed with the College graduate officer.

It is recommended that an approved *Plan* be filed by the applicant for the Ph.D. degree when he has earned approximately sixty credits beyond the baccalaureate degree. *In addition to filing the Plan, the student must have satisfied foreign language requirements and must have passed the Final Qualifying Examination — written and oral — before the doctoral committee will recommend candidacy.*

COMMENCEMENT

Information concerning commencement announcements, caps and gowns, invitations, tickets, time and place, assembling, and other relevant items will be mailed to the graduates by the Class Board prior to the event. Candidates for advanced degrees are requested and expected to attend the commencement at which the University confers upon them the honor of the degree earned.

REQUIREMENTS FOR THE MASTER'S DEGREE

In most master's degree programs, the minimum requirement for the degree is forty-eight credits — under either Plan A or Plan B or Plan C as follows:

Plan A requires thirty-six credits of work plus a twelve credit thesis.

Plan B requires forty-five credits of work plus a three or four credit essay.

Plan C requires forty-eight credits. Essay or thesis not required. Authorized only in selected areas. Interested students should consult adviser.

These requirements vary slightly by departments; see listings under the individual departments for exact information.

Course Requirements

At least thirty-six credits must be taken in residence.

At least eight credits of work in the major field, in addition to the essay or thesis, must be in courses open only to graduate students (0700 and above).

REQUIREMENTS FOR THE DOCTOR'S DEGREE

Preliminary Qualifying Examination

Responsibility for the requirement of a preliminary qualifying examination is vested in the graduate faculty of each department.

ment and specifically its committee on doctoral study. Accordingly, each committee may require this examination of all of its candidates or of any candidate at any time it may determine prior to the final qualifying examination.

Final Qualifying Examination for Candidacy

A final qualifying examination is required of each applicant. Before the applicant can be recommended to this examination by his doctoral committee, he must have filed his *Plan of Work* and completed the foreign language requirement. The final qualifying examination will be in part written and in part oral. When this examination has been passed, the applicant will be advanced to the status of "doctoral candidate."

The written qualifying examination will cover the applicant's major and minor areas and may include such other related matters as the doctoral examining committee may prescribe. Within thirty days after the written examination has been passed, the oral qualifying examination will be conducted by the doctoral examining committee, with the chairman of the departmental committee on doctoral study or his designee and a graduate examiner approved by the Graduate Division. This examination will relate to the subject matter of the written examination, the applicant's major and minor areas, and other pertinent matters.

If an examining committee does not certify that the applicant has been passed in either the written or oral examinations, it must make specific recommendations with reference to admitting the applicant to a second examination and specify any additional work that should be completed prior to such an examination. If a second examination is held, it must be scheduled within one calendar year and shall be considered final.

The student's doctoral committee is selected at the time the doctoral *Plan of Work* is prepared. At this same time, and upon consultation with the Chairman of the student's doctoral committee, a member outside of the student's major department is appointed to the committee by the Office for Graduate Studies. This appointed representative is expected to meet as a member of the student's committee while the research and preparation of the dissertation are in process. He, along with all members of the committee, will also be present at the final oral presentation. The graduate examiner files a brief report to the Graduate Division detailing the conduct of the oral presentation.

Essays, Theses, and Dissertations

There is no prescribed form for the essay. The form of the title page for the thesis shown on page 28 may be used for essays, and manuals of style may be consulted for form, if the student or the department desires to use them.

The original copy of the essay should be submitted to the Liberal Arts Graduate Office after it is approved and signed by the adviser. This copy will be returned to the department within a reasonable time after the student's graduation date. The thesis or dissertation *must be an original work, either in or definitely related to the student's major area of specialization*. If proper standards of quality, objectivity, originality,

and independence are maintained, the candidate may use data which he has derived from his University research. Neither the results of the research nor the publication of findings can be restricted by any non-university agency, nor can they be published prior to acceptance by the Graduate Division, unless prior approval of such publication has been secured from both the adviser and the Graduate Division. Advisers have primary responsibility for approval of the essay or thesis, but every member of a doctoral committee must read, approve and sign the dissertation.

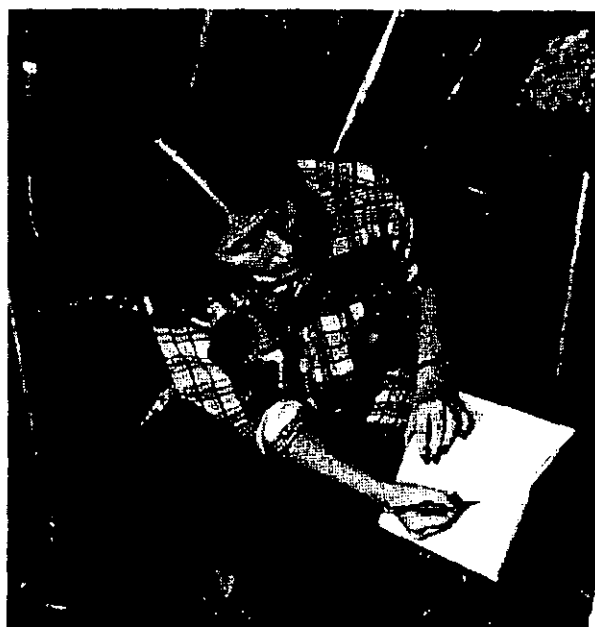
A student may not begin work on his manuscript until he has submitted his approved *Plan of Work* and outline form. He may then register for the thesis or dissertation and pay regular fees in the same manner as for all other course work.

Master's candidates under the thesis plan register for the course numbered 0899 in the department of their major. This course is entitled *Master's Thesis Research and Direction* and must be elected for a total of twelve credits. Ph.D. candidates register for forty-five credits in the course numbered 0999 in their major field, *Doctoral Dissertation Research and Direction*. All credit used toward meeting dissertation requirements must be earned in this course.

The publication and dissemination of research findings will not be restricted by the University after the approved manuscript has been received and accepted by the Graduate Office.

Outline and Record Form

Before a student begins work on his thesis or dissertation, he must file an outline and record form. Master's candidates must prepare three copies — retain one, leave one with the adviser, and file one with their graduate officer. Doctoral candidates must prepare four copies which, after receiving departmental approval, will be forwarded to the Office for Graduate Studies.



AMERICAN STUDIES

Office: 415 State Hall

Director: Vern Wagner

Advisory Committee

David S. Herreshoff, English

Richard D. Miles, History

Alan Raucher, History

The American Studies Program is an integrated program which offers the student an opportunity to study the nature and development of American civilization and to develop an understanding of the relationships between American culture and that of other nations.

BACHELOR OF ARTS

Special Curriculum

The American Studies Program is interdepartmental and is administered by an advisory committee composed of members of departments offering work in the program. Students are urged to consult any member of the advisory committee for the purposes and nature of the program, and should consult those advisers whose field most closely approximates their particular interest in American studies. While the American Studies Program concentrates its major degree requirements in the junior and senior years, students are urged to consult with members of the advisory committee as early as possible, preferably in their freshman year.

Curriculum and Major Requirements—Each American studies major must complete certain required courses. Majors must also fulfill the general requirements of the College of Liberal Arts for a B.A. degree. However, the required courses in the American Studies Program may also be used to satisfy some group requirements.

In the junior and senior years, the student will be expected to elect, with the consent of his adviser, a minimum of thirty-six credits from at least five departments. The committee of advisers will guide students in their choice of such courses, which represent subject matter of particular relevance to an understanding of American civilization. These thirty-six credits are in addition to the required senior seminars and the other prescribed courses.

Required Courses:

English—at least 12 credits, selected from the following courses or their equivalents: English 0370, 0385, 0571.

History—at least 20 credits, including 4 credits in History 0130 or equivalent; 8 credits in American History 0204, 0205 or equivalent; 8 credits in History 0518, 0519.

American Studies—at least 12 credits, including 4 credits in 0201 or 20 or 0501; and 8 credits in 0597 and 0598; preferably taken during senior year when possible.

Representative Electives:

Anthropology 0525 — Retention of African Culture in the New World
Anthropology 0536 — Culture and Personality
Anthropology 0627 — Native Americans
Anthropology 0631 — Comparative Family Patterns of American Ethnic Groups
Art History 0600-0601-0602 — Art and Architecture in America
Economics 0543 — Comparative Economic Systems
Economics 0549 — American Labor History (History 0543)
English 0228 — Introduction to Folklore
English 0270 — Great American Books to 1900
English 0271 — Major Authors in American Literature of the Twentieth Century
English 0275 — Introduction to Afro-American Literature
English 0475 — History and Development of Afro-American Literature
Geography 0632 — Historical Geography of the United States
Geography 0635 — The Geography of Ethnic Groups in the United States
History 0314-0315 — The Black Experience in America I and II
History 0501 through History 0524: Any of the courses in this sequence
History 0550-0551 — Comparative History: United States and Western Europe since 1890
Humanities 0575-0576 — Studies in the Arts and Ideas of American Culture
Humanities 0652 — Interrelation of the Arts in Critical Theory
Philosophy 0548 — Pragmatism
Political Science 0201 — Introduction to Urban Politics
Political Science 0516 — American Political Reform Movements
Political Science 0569 — American Political Thought
Psychology 0360 — Psychology of Social Behavior
Psychology 0566 (Political Science 0577) — Psychology of Political Leadership
Sociology 0408 — Race Relations in the United States
Sociology 0413 — Sociology of Religion
Sociology 0510 — Ethnic Groups in the United States
Sociology 0515 — The World of the Blue Collar

Students should not choose indiscriminately from the above and other pertinent courses, but should attempt to integrate choices around complete units, subjects, or themes. Often the prerequisites for courses such as those listed above will be waived for American Studies majors when courses from other departments will serve as substitute prerequisites or when the intent to integrate subject matter across disciplines is specifically declared. Students are urged to see a member of the American Studies Advisory Committee to learn the content of courses, to determine whether prerequisites are necessary, and to coordinate course work taken in several departments.

MASTER OF ARTS

A Master of Arts degree with a concentration in American Studies is offered under the Department of Humanities. (See page 337.) Students may wish to examine the courses listed above, along with other courses numbered above the 0600 level from these same departments, to consider as electives suitable to meet requirements for the Master of Arts degree in Humanities.

COURSES OF INSTRUCTION' (A S)

0201. Introduction to American Culture. Cr. 4.

Conflicts and changes in American heroes, values, ideas, and regions of experience introduced through study of selected American films, historical documents, and works of literature.

0220. Colloquium in the Recent Past. Cr. 4.

Restricted to students in the Liberal Arts Honors Program. Integration of disciplines involving study of twentieth century American culture. Topics to be announced in *Schedule of Classes*.

0490. Directed Study. Cr. 3-4 (Max. 9).

Prereq: consent of American Studies adviser. Independent reading and research on history and development of American culture.

0501. American National Character. Cr. 4.

Prereq: one course in American history; one course in American literature. Introduction to the major issues and conflicts in the study of the American character through four themes: innocence, affluence, the success myth, and quest for self. A basic course for majors, a non-specialized elective for non-majors. Inter-relations of literature, history, foreign policy, economics, race relations, immigrant studies, and American humor.

0597. Seminar in American Studies I. Cr. 4.

Prereq: consent of instructor or American Studies adviser. Integration of materials and concepts derived from prior work in other departments of the American Studies Program. Reading, discussion, individual research oriented toward a common theme or problem in the study of American culture. Topics to be announced in *Schedule of Classes*.

0598. Seminar in American Studies II. Cr. 4.

Prereq: consent of instructor or American Studies adviser. Continuation of American Studies 0597. Topics to be announced in *Schedule of Classes*.

ANTHROPOLOGY

Office: 137 Manoogian Hall

Chairman: James B. Christensen

PROFESSORS

James B. Christensen, Leonard W. Moss, Arnold R. Pilling, Victor A. Rapport (Emeritus)

ASSOCIATE PROFESSORS

Barbara C. Aswad, Gordon L. Grosscup, Helen E. Hause, F. Jane Hill, Bernice Kaplan, Mark Weiss

ASSISTANT PROFESSORS

Gerald W. Kleis, Robert Schact

INSTRUCTORS

Linda Darga, G. Elaine Rocchio

COOPERATING FACULTY, DEPARTMENT OF ANATOMY, SCHOOL OF MEDICINE
Morris Goodman, Professor, Gabriel W. Lasker, Professor

DEGREE PROGRAMS

Bachelor of Arts — with a major in anthropology

Bachelor of Arts — with a major in anthropology and sociology

Master of Arts — with a major in anthropology

Doctor of Philosophy — with a major in anthropology and specializations in cultural anthropology, archaeology, ethnolinguistics, physical anthropology, and historical archaeology.

Undergraduate training in anthropology is designed for various groups of students: (1) those desiring scientific knowledge of the social and cultural determinants of behavior; (2) those planning to enter a public service profession such as nursing, medicine, education, or law; (3) those expecting to engage in some form of work with the public that will require a broad grasp of the nature of society, group behavior and social change; (4) those looking forward to teaching anthropology or another of the social or behavioral sciences; (5) those preparing for a career in international studies or for work in foreign affairs or in a foreign country; (6) those majoring in anthropology as a preparation for graduate professional training in social work; (7) those planning to pursue graduate studies in anthropology. Students who plan to enter public relations, social planning, urban planning, or the teaching of social studies should consult with staff members for guidance. Students interested in social work should consult the designated adviser to undergraduates in the graduate School of Social Work.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

BACHELOR OF ARTS

With a Major in Anthropology

Major Requirements — Students majoring in anthropology are required to elect a minimum of forty-four credits in anthropology, including Anthropology 0210, 0211, 0520, 0527, 0531, and 0638 or 0639.

Limitations — Students may not elect more than sixty-eight credits in course work within the department. Courses in Swahili (Swahili 0215 through 0218) carry foreign language credit only. Swahili courses do not count toward a major in anthropology nor toward social science group requirements.

Recommended Cognate Courses — Cognates for anthropology majors are art history, biology, economics, geography, geology, history, political science, psychology and sociology.

With a Major in Anthropology and Sociology

Major Requirements — Students majoring in anthropology and sociology are required to take Anthropology 0210, 0211, 0520, 0527, 0531, and 0638 or 0639, Sociology 0201 or Social Science 0191-0192*, Sociology 0202, 0400, 0460, and 0430 or 0630 or 0631. They must complete a total of at least twenty-eight credits in sociology and twenty-eight credits in anthropology, but not more than sixty-eight credits in the two fields combined.

MASTER OF ARTS

With a Major in Anthropology

Plan A — Thirty-six credits in course work plus a thesis.

Admission — The student must have had the following courses or their equivalents: Anthropology 0210, 0211, 0520. Students must have completed the undergraduate group requirement in foreign language or its equivalent.

The student must have an undergraduate honor point average of at least 3.0. Probationary admission may be granted in exceptional cases where the honor point average is less than 3.0. The department requires three recommendations. The recommendation forms may be secured from the department office. The completed forms are to be returned to the chairman of the department. Applicants will not be admitted to graduate work until this material has been received and evaluated.

Candidacy must be established by the time twenty credits have been earned.

Degree Requirements — All students are required to maintain a B (3.0) average. A grade of C in two courses will be sufficient reason to dismiss a student from the graduate program. There must be thirty-six credits in anthropology and

related fields, including two graduate seminars in anthropology. The following courses must be taken if the student has not completed them as an undergraduate: Anthropology 0527, 0531 and 0600, 0638 or 0639. A final examination is required on the thesis and the student's general command of the field.

Plan B — Not available in anthropology.

Plan C — Forty-eight credits in course work, demonstration of research competence and examination.

Admission — Available only to doctoral applicants and awarded, on application, to qualified students successfully pursuing work for the Ph.D. in anthropology. Consult the department chairman for further details.

DOCTOR OF PHILOSOPHY

With a Major in Anthropology

Admission — Only a limited number of applicants who have demonstrated superior ability can be accepted. To be considered for admission a student must have either a 3.0 (or above) undergraduate honor point average, or a master's degree or its equivalent. However, neither of these qualifications by itself constitute evidence of aptitude for doctoral work. The student must have had the following courses or their equivalents: Anthropology 0210, 0211, 0520.

In addition to the transcripts and other materials required by the Graduate Division, the department requires three recommendations. The recommendation forms may be secured from the department office. The forms are to be returned to the chairman of the department. An applicant's admissibility into the doctoral program will not be reviewed until these materials have been received. For further information, contact the Chairman of the Department of Anthropology.

Degree Requirements — All students are required to maintain a B (3.0) average. A grade of C in two courses will be sufficient reason to dismiss a student from a graduate program.

In order that the student may obtain the broad background of factual and theoretical material required in anthropology and may recognize the unity of the various subfields, the student is expected to fulfill the following requirements: (1) achieve a mastery of general theory in anthropology; (2) command in detail theories, concepts, methodology and research techniques in common usage in the student's subfield of concentration (cultural anthropology, linguistics, archaeology or physical anthropology); (3) successfully complete a written and oral qualifying examination establishing competence in depth in the student's subfield of specialization together with lesser concentration in the three other subfields; (4) complete substantial field research, which will ordinarily be of sufficient duration and scope to provide materials for the student's dissertation (in the case of physical anthropology and some other specializations, the dissertation may be based on laboratory research) and (5) submit an acceptable dissertation and present a final lecture.

*Students in combined anthropology-sociology may not count both Sociology 0201 and Social Science 0191-0192 as part of their twenty-eight credit requirement in sociology. Those who elect Social Science 0191 will receive four credits toward their major unless, at the discretion of the department, they are required to take Sociology 0201; in such case the 0191-0192 sequence shall count only toward the social science requirement.

In addition, the student must demonstrate a proficiency in an approved scholarly language. Approved foreign languages include Arabic, Chinese, French, German, Italian, Japanese, Portuguese, Russian and Spanish. Proficiency may be demonstrated in either of the following ways: (1) a grade of C or better in two years of work in the language offered to meet the Ph.D. requirement (four semesters or six quarters of classwork at any accredited college or university); (2) satisfactory performance on a standardized (Educational Testing Services) examination, or on a special on-campus examination.

The nature of the tools of research and requirements for satisfactory proficiency will be determined by each student's doctoral committee. Tools of research may include statistics, mathematics, computer science and/or a field language.

A more detailed discussion of the doctoral program is available from the department on request.

Assistantships and Fellowships — A limited number of assistantships and fellowships are available. Consult the department chairman for further details.

Doctoral applicants are required to have three successive quarters in residence as full-time students as defined by the Graduate Division. (See the appropriate section under "Degree Requirements" on page 25 in the Graduate Division section of this bulletin.)

COURSES OF INSTRUCTION¹ (ANT)

Also see *Swahili (SWA)*, page 251.

0210. Introduction to Anthropology. Cr. 4.

Biological evolution, human variability, prehistoric man and early cultures, ethnography, language and cultural growth, diffusion and independent invention, problems of the field.

0211. Introduction to Physical Anthropology. Cr. 4.

Prereq: sophomore standing. Role of hereditary and environmental factors, human genetics, meaning of "race" and racial classifications, fossil record, evolution of man.

0390. Directed Study. Cr. 2-8 (Max. 8).

Prereq: 16 credits in anthropology with grade A or B; consent of instructor. Open to juniors and seniors who show ability and interest and who desire to do advanced reading. Student should make arrangements with instructor in charge of field in which reading is to be done.

0421. World Ethnography. Cr. 4.

Prereq: SOC 0201 or SS 0191-0192 or ANT 0210. Selected representative cultures from Oceania, Islamic North Africa, Near East, Sub-Saharan Africa, Asia, American Indian.

0490. Honors Program in Anthropology. Cr. 2-8 (Max. 20).

Prereq: junior standing; 3.0 h.p.a.; 3.3 h.p.a. in department; 18 credits in sociology and anthropology; consent of chairman or dean. For distinctly superior students who can pursue independent program of research and studies. Student reports on progress of work at bi-weekly pro-seminar meetings.

0510. The World of Language (LIN 0510). Cr. 4.

Introduction to the field of linguistics with concentration on the scope, basic concepts, and methodologies of the field.

0519. Peasant Culture. Cr. 4.

Prereq: ANT 0520 or consent of instructor. Survey of peasant cultures around the world; social role of peasant and his relations to market, to village, and to town.

0520. Social Anthropology. Cr. 4.

Prereq: SOC 0201 or SS 0191-0192, or ANT 0210. Types of social organization and cultural heritage; ancient, primitive and complex cultures analyzed, compared, contrasted.

0524. Anthropological Perspective on the Role of Women. Cr. 4.

Prereq: ANT 0210, 0520 or consent of instructor. Evolutionary and cultural bases of female roles; using a world sample, division of labor, marriage and sexual behavior, power and ideology.

0525. Retention of African Culture in the New World. Cr. 4.

Prereq: ANT 0210 or 0520 or consent of instructor. African background of New World blacks; slave trade; and degree to which African culture has been retained in the New World.

0527. Introduction to Archaeology. Cr. 4.

Prereq: ANT 0210. Archaeological methods and theory, artifact analysis and dating techniques.

0528. Field Work in Archaeology of the New World. (0,12). Cr. 4 (Max. 8).

Prereq: ANT 0210 and consent of instructor; ANT 0527 recommended. Material fee \$10. Introduction to reconnaissance and excavation of sites; preparation and cataloging of specimens.

0529. Introduction to Phonology (LIN 0529). Cr. 4.

Prereq: ANT 0210 or 0520 or consent of instructor. Scientific study of languages through an examination of linguistic structures; sound systems.

0530. Introduction to Morphology (LIN 0530). Cr. 4.

Prereq: ANT 0529 or consent of instructor. Representation of meaning in the forms of languages.

0531. Language and Culture (LIN 0531). Cr. 4.

Prereq: ANT 0210 or consent of instructor. Relationship between linguistic categories and patterns of culture. Functioning of language in society. Knowledge of linguistics not required.

0533. Middle Eastern Societies (NE 0533). Cr. 4.

Prereq: ANT 0210 or 0520 or SOC 0201 or NE 0200 or consent of instructor. Stratification, ethnic and religious groups; peasant, nomadic and urban sectors and their interrelationships; family, marriage and sex roles; nationalism, colonialism and revolutionary movements.

0535. Economic Anthropology. Cr. 4.

Prereq: ANT 0210 or 0520 or consent of instructor. Cross-cultural analysis for testing economic concepts. Technology, trade, incentives, rewards, division of labor, specialization, property in different societies and their interrelationships.

0536. Culture and Personality. Cr. 4.

Prereq: ANT 0210 or 0520 and either PSY 0360 or SOC 0460 written consent of instructor. Introduction to ethno-psychologic influence of culture on personality formation; relation of cult patterns, modes, and imperatives to perception, cognition, other psychological factors.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

0537. Comparative Religion. Cr. 4.

Prereq: ANT 0210 or 0520 or consent of instructor. The nature and variety of religious belief and practice; theoretical interpretations.

0550. Syntax (LIN 0550). Cr. 4.

Prereq: ANT 0529 and 0530 or consent of instructor. Introduction to syntactic analysis utilizing different theoretical approaches.

0556. (N E 0556) Development of Biblical Religion I. Cr. 4.

Religion of ancient Israel as it developed in the context of the ancient Near East. Comparison of Israel's beliefs and practices with those with which Israel was familiar; similarities and differences.

0557. (N E 0557) Development of Biblical Religion II. Cr. 4.

Development of biblical religion within the Old Testament with particular attention to the prophetic movement and to the wisdom literature.

0560. Anthropological Museology. (4,4). Cr. 4 (Max. 8).

Prereq: ANT 0210 and 0527 or consent of instructor. Introduction to specimen identification and care, cataloging procedure, display techniques and museums.

0600. Social Organization. Cr. 4.

Prereq: ANT 0520 or consent of instructor. Advanced survey of the anthropological concepts and theories concerning kinship, economics, politics, peasants, urbanization and urban anthropology.

0606. Urban Anthropology (SOC 0606) (U P 0531). Cr. 4.

Prereq: ANT 0210, 0520 or consent of instructor. Socio-cultural effects of urbanization in the developing areas of the world, particularly Africa, Latin America, Southeast Asia and India. The process of urbanization; the anthropological approach in the area of urban studies.

0608. (ENG 0628) Studies in Folklore. Cr. 4 (Max. 8).

Prereq: ENG 0228 or 0360 or 0465 or ANT 0210 or consent of instructor. Use of folklore in literature; field work; analysis of collected oral literature; study of separate genres of oral literature and analysis of parallel texts. Topics to be announced in *Schedule of Classes*.

0609. Culture and Ecology. Cr. 4.

Prereq: ANT 0520 or consent of instructor. Ethnological approaches to interrelationship of environmental, demographic and socio-cultural variables. A survey of relevant ethnographic reports and theoretical and methodological problems.

0611. Human Variability. Cr. 4.

Prereq: ANT 0211. The concept of race and its genetic basis. Human variability as a result of adaptation and other genetic mechanisms. A discussion of Mendelian genetics, population genetics and biometrics as they apply to the understanding of human variation.

0612. Human Evolution. Cr. 4.

Prereq: ANT 0211. The origin and development of the primates with special emphasis on the evolution of the Hominids.

3. Methods of Physical Anthropology. (3,2). Cr. 4.

Prereq: ANT 0211 and consent of instructor. Use of, and theory and techniques employed by physical anthropologists. Means of studying human microevolution.

0614. Biology and Culture. Cr. 4.

Prereq: ANT 0210 and 0211. Interrelationships between the cultural and biological aspects of man; human genetic variability, human physiological plasticity and culture as associated mechanisms by which man adapts to environmental stress.

0615. Primate Behavior. Cr. 4.

Prereq: ANT 0211. Comparative behavior of the non-human primates and its application to the understanding of human behavior.

0616. Primate Evolution. Cr. 4.

Prereq: ANT 0211. Evolutionary theory and its application to the evolution of the non-human primates, fossil and living.

0617. Political Anthropology. Cr. 4.

Prereq: ANT 0210 or 0520. Comparative political systems of primitive societies. Government, the state, warfare, law, and social control. Theoretical approaches with analysis of representative societies.

0618. Theory and Problems of Emergent Countries (SOC 0618). Cr. 4 (Max. 8).

Prereq: SOC 0201 or SS 0191-0192 or ANT 0210. Underdeveloped and developing countries. Emergent nationalism and socio-cultural factors affecting change. Cultural, demographic, institutional, technological aspects.

0620. Cultures and Peoples of Mediterranean Europe. Cr. 4.

Prereq: ANT 0210, 0520 or consent of instructor. Ecological patterns, themes, and values of Mediterranean society; peasant and urban sectors, community studies, social change.

0621. Ethnography of Italy. Cr. 4.

Prereq: ANT 0520 or consent of instructor. Ethnography of peninsular and insular Italy. Ethnohistory of regional sub-cultures. Pre-Roman migration and settlement. Contemporary problems of culture and socio-economic change. Interrelationships of contemporary institutions within Italian society.

0622. Cultures and Peoples of North Africa. Cr. 4.

Prereq: ANT 0210 or 0520 or consent of instructor. Geography, ethnic components, and languages of North Africa; comparison of traditional cultures of the Bedouin and settled villagers; background of contemporary nationalism.

0623. Cultures of Subsaharan Africa. Cr. 4.

Prereq: ANT 0210 or 0520 or consent of instructor. Subsaharan African cultures and societies; emphasis on both complex and simple political systems.

0624. Stability and Change in Contemporary Africa. Cr. 4.

Prereq: ANT 0210 or 0520 or consent of instructor. Cultural and social change in Subsaharan Africa; impact of European and North African culture on the societies of the subcontinent.

0627. Native Americans. Cr. 4.

Prereq: ANT 0210 or consent of instructor. Survey of Indian and Eskimo cultures north of Mexico; adjustment to environment; history of the several tribes.

0629. Culture Area Studies. Cr. 4 (Max. 12).

Prereq: ANT 0210 or consent of instructor. Culture and social changes. Origins and functional interrelationships, regional variation in population, settlement, race contact, acculturation, migration; social institutions. Topics to be announced in *Schedule of Classes*.

0630. Latin American Ethnology. Cr. 4.

Prereq: SS 0191 or ANT 0210 or 0520 or HIS 0525 or 0526 or consent of instructor. Cultural variation within Latin America; continuities and changes in the transition from Indian and Mestizo society to modernization within national contexts.

0631. Comparative Family Patterns of American Ethnic Groups. Cr. 4.

Prereq: ANT 0520. Courtship, marriage, divorce, division of labor within household, and other patterns between kinsmen. The old New England Puritan tradition, Amish, Irish, Polish, Southern Negro, Eastern European Jewish.

0633. Comparative Kinship and Marriage. Cr. 4.

Prereq: ANT 0520 or consent of instructor. Kinship patterns and functions, marriage and patterns of descent. Relationship of family and kinship groupings to such aspects as economics, religion and political structure and the theoretical implications.

0635. Sociolinguistics (LIN 0635). Cr. 4.

Prereq: ANT 0210 or SOC 0201 or SS 0191. Method and theory in the study of language and society; ethnography of communication; repertoires, codes and dialects: street language and literature; language planning and problems; bilingualism and language loyalty, language in education.

0638. Anthropological Theory before 1940. Cr. 4.

Prereq: ANT 0210 or 0520 or consent of instructor. Period prior to 1850. Since 1850: contributions of Darwin, Spencer, Boas, Durkheim, Malinowski, Radcliffe-Brown, Tylor and Morgan; American, British, German cultural and social anthropology.

0639. Contemporary Theory in Anthropology. Cr. 4.

Prereq: ANT 0638 or 24 credits in anthropology; or consent of instructor. Analytical framework in use and developments in theory since 1940; the comparative method in the social sciences. Contemporary anthropological problems.

0649. Historical Archaeology of North America. Cr. 4.

Prereq: ANT 0527 or consent of instructor. Archaeological techniques and their uses in augmenting the historical record of North America; types of historic sites; artifact types; interpretation of excavations.

0650. North American Prehistory. Cr. 4.

Prereq: ANT 0210 or consent of instructor; ANT 0527 recommended. Prehistory of North America north of Mexico from the late Pleistocene to Euro-American contact.

0651. Meso-American Prehistory. Cr. 4.

Prereq: ANT 0210 or consent of instructor; ANT 0527 recommended. Prehistory of Mexico and Central America from the late Pleistocene to the Spanish conquest.

0652. South American Prehistory. Cr. 4.

Prereq: ANT 0210 or consent of instructor; ANT 0527 recommended. Prehistory of South America from the late Pleistocene to the Spanish conquest.

0653. Prehistoric Archaeology of the Mediterranean. Cr. 4.

Prereq: ANT 0210 or consent of instructor. The prehistoric archaeology of Europe, North Africa and the Near East; the Paleolithic through Neolithic cultural periods.

0655. Early Civilization of the Middle East. Cr. 4.

Prereq: ANT 0210 or consent of instructor; ANT 0527 recom-

mended. Archaeology of the civilizations of the Middle East, from the evolution of early urban states to the first stages of imperial expansion (4000-1000 B.C.).

0710. Studies in Linguistics (LIN 0710). Cr. 4-16.

Prereq: ANT 0529, 0530 and 0550. Topics to be announced in *Schedule of Classes*.

0720. Methodology and Research Techniques. Cr. 2-4 (Max. 8).

Prereq: consent of instructor. Prepares students for field or laboratory research. Training and techniques relevant to areas of specialization of students.

0760. Seminar in Problems and Concepts in Physical Anthropology. Cr. 4 (Max. 12).

Prereq: consent of instructor. Central concepts and theories. Current developments, problems, and contemporary research orientations. Topics to be announced in *Schedule of Classes*.

0761. Seminar in Problems and Concepts in Linguistics (LIN 0761). Cr. 4 (Max. 12).

Prereq: consent of instructor. Central concepts and theories in linguistics. Current developments, problems, and contemporary research orientations in the field. Topics to be announced in *Schedule of Classes*.

0762. Seminar in Problems and Concepts in Archaeology. Cr. 4 (Max. 12).

Prereq: consent of instructor. Central concepts and theories. Current developments, problems, and contemporary research orientations. Topics to be announced in *Schedule of Classes*.

0763. Seminar in Problems and Concepts in Cultural Anthropology. Cr. 4 (Max. 12).

Prereq: consent of instructor. Central concepts and theories. Current developments, problems and contemporary research orientations. Topics to be announced in *Schedule of Classes*.

0764. Seminar in Problems and Concepts in Linguistic Anthropology (LIN 0764). Cr. 4 (Max. 12).

Prereq: ANT 0531 or consent of instructor. Central concepts and theories. Current developments, problems and contemporary research orientations. Topics to be announced in *Schedule of Classes*.

0765. Seminar in Problems and Concepts in Peasant Culture. Cr. 4 (Max. 12).

Prereq: consent of instructor. Central concepts and theories. Current developments, problems, and contemporary research orientations. Topics to be announced in *Schedule of Classes*.

0766. Seminar in Urban Anthropology. Cr. 4 (Max. 12).

Prereq: ANT 0606 or consent of instructor. Developing concepts and theories relevant to urbanization. Current developments, problems and contemporary research orientations. Topics to be announced in *Schedule of Classes*.

0771. Seminar in Cultural Dynamics. Cr. 2-4.

Prereq: consent of instructor. Aspects of cultural change, including innovation and diffusion of culture; syncretism and reinterpretation and other processes of culture change. Result of contact of European and native peoples throughout the world.

0772. Seminar in Culture and Personality. Cr. 2-4.

Prereq: consent of instructor. Ethno-psychology; role of culture in personality formation; interaction of biological, social and cultural factors in human behavior.

0779. Seminar in Development of Ethnological Theory. Cr. 2-4.
Prereq: consent of instructor. Growth of ethnology, differentiation of leading points of view regarding problems and subject matter. Evolutionists, historical schools, functionalists, advocates of culture and personality approaches.

0790. (ANA 0790) Directed Study in Physical Anthropology. Cr. 2-12 (Max. 12).

Prereq: consent of adviser and graduate officer.

0791. Directed Study in Linguistics (LIN 0791). Cr. 2-12 (Max. 12).

Prereq: consent of adviser and written consent of graduate officer. Open only to M.A. candidates or Ph.D. applicants. A research problem which requires field work or intensive and systematic reading of original technical literature.

0792. Directed Study in Archaeology. Cr. 2-12 (Max. 12).

Prereq: consent of adviser and written consent of graduate officer. Open only to M.A. candidates or Ph.D. applicants. A research problem which requires field work or intensive and systematic reading of original technical literature.

0793. Directed Study in Cultural Anthropology. Cr. 2-12 (Max. 12).

Prereq: consent of adviser and written consent of graduate officer. Open only to M.A. candidates or Ph.D. applicants. A research problem which requires field work or intensive and systematic reading of original technical literature.

0890. Directed Study. Cr. 2-10 (Max. 10).

Prereq: consent of adviser, written consent of graduate officer.

0891. Field Problem. Cr. 2-12 (Max. 12).

Prereq: consent of adviser and written consent of graduate officer. Open only to M.A. candidates or Ph.D. applicants. A research problem which requires field work or intensive and systematic reading of original technical literature.

0899. Master's Thesis Research and Direction. Cr. 2-12 (12 required).

Prereq: consent of adviser.

0990. Directed Study. Cr. 2-10 (Max. 10).

Prereq: consent of adviser and graduate officer.

0999. Doctoral Dissertation Research and Direction.

Credits to be arranged. Prereq: consent of doctoral adviser.

0217. Elementary Swahili III. Cr. 4.

Prereq: SWA 0216. Foreign language credit only. Continuation of Swahili 0216.

0218. Intermediate Swahili. Cr. 4.

Prereq: SWA 0217. Foreign language credit only. Conversational Swahili and grammar review; reading of Swahili literature. Continuation of Swahili 0217.

Swahili (SWA)

0215. Elementary Swahili I. Cr. 4.

Prereq: sophomore standing. Foreign language credit only. Training in pronunciation, aural comprehension, oral and written expression. Supervised laboratory period for part of class preparation.

Elementary Swahili II. Cr. 4.

Prereq: SWA 0215. Foreign language credit only. Continuation of Swahili 0215.

ART AND ART HISTORY

Office: 450 West Kirby
Chairman: G. Alden Smith

PROFESSORS

William A. Allen, Wayne Andrews, Wilfred C. Becker, Mary Jane Bigler, Wayne Claxton (Emeritus), Olga Constantine, Phillip G. Fike, Peter J. Gilleran, Bernard M. Goldman, Joseph Gutmann, David A. Mitchell, Louise J. Nobili, William E. Pitney (Emeritus), Ernst Scheyer (Emeritus), G. Alden Smith, Robert J. Wilbert, Sherman A. Willson, William T. Woodward

ASSOCIATE PROFESSORS

David H. Becker, Richard J. Bilaitis, John D. Egner, Ellen M. Laing, Thomas Parish, Patricia A. Quinlan

ASSISTANT PROFESSORS

Thomas P. Fitzgerald, Alastair Granville-Jackson, John G. Hegarty, John D. Hilberry, Urban R. Jupena, John C. Mills, James E. Nawara, Nancy C. Neaher, Robert J. Nelson, Melvin Rosas, Stanley L. Rosenthal

INSTRUCTOR

Dominic Ricciotti, Joseph B. Zajac

ADJUNCT PROFESSORS

Dennis R. Barrie, William Bostick, Fred J. Cummings, Linda Downs, Michael Kan, Richard R. Kinney, Dewey F. Mosby, John H. Neff, William Peck

DEGREE PROGRAMS

Bachelor of Arts — with a major in art or art history.

Bachelor of Fine Arts — with a major in art and concentration in one of the following: advertising design, ceramics, design, drawing, fibers, industrial design, interior architecture, metalsmithing, painting, photography, printmaking or sculpture.

Master of Arts — with a major in art and specialization in one of the following: advertising design, crafts, graphics, industrial design, interior architecture, painting, or sculpture.

Master of Arts — with a major in art history or museology.

Master of Fine Arts — with a major in art and specialization in one of the following: crafts, design, graphics and drawing, painting, or sculpture.

The courses in art are designed to provide a broad understanding and the opportunity for full experience in the visual arts. A cooperative arrangement between the department and the Detroit Institute of Arts provides the student an opportunity for specialized study and research in the history of art.

The Department of Art and Art History reserves the right to retain for its permanent collection the work submitted by students for credit in any course and to exhibit or reproduce in University publications such work.

Undergraduate majors in the Department of Art and Art History, except those majoring in art history, may elect to work for either of two degrees: Bachelor of Arts or Bachelor of Fine Arts.

Transfer students in studio arts must present portfolios of their art work. If accepted on the basis of portfolios and transcripts, they must take at least forty credits in art courses in residence for either the B.A. or B.F.A. degree.

BACHELOR OF ARTS IN ART

Major Requirements — Sixty-four to seventy-two credits must be elected in art. Philosophy 0370 (Aesthetics) is required. For specific requirements, consult the Art Department.

BACHELOR OF ARTS IN ART HISTORY

Major Requirements — Students must complete a minimum of forty-two credits in Art History to include twelve credits in the basic surveys of Art History (Art History 0210, 0211, 0212), A H 0220 and one course from among A H 0214, 0215, 0216 for a total of eight credits, at least twenty-two credits in advanced level courses of which a minimum of eighteen must be 0500-0600 level courses. It is recommended that students who intend to pursue graduate work in Art History elect Art History 0697.

BACHELOR OF FINE ARTS

Special Curriculum

Curriculum and Major Requirements — 96 to 120 credits must be elected in art. In general, a foreign language is not required. In some cases, the student has the option to omit either the foreign language requirement or the science requirement, but all other group requirements must be met and Philosophy 0370 must be completed. For specific requirements and general outline of the following fields of concentration, consult the Art Department office.

- | | |
|-----------------------|--------------------------|
| a. Advertising Design | g. Interior Architecture |
| b. Ceramics | h. Metalsmithing |
| c. Design | i. Painting |
| d. Drawing | j. Photography |
| e. Fibers | k. Printmaking |
| f. Industrial Design | l. Sculpture |

MASTER OF ARTS IN ART

Plan A — Thirty-six credits in course work plus a thesis.

Plan B — Forty-five credits in course work plus an essay

Admission — The applicant must present the equivalent of an undergraduate major in art, including the basic prerequisites for graduate study in art. Before any admission can be recommended, the Departmental Committee on Graduate Study or the area coordinator must approve undergraduate preparation and scholarship, and verify the applicant's potential for graduate study.

Candidacy must be established by the time twenty-four credits have been earned.

Degree Requirements — Each candidate is expected to work toward his goal by means of a definite plan, approved by the departmental committee, the area coordinator, or the adviser, which will determine course selections, the choice of thesis (Plan A) or essay-project (Plan B) and any other requirements necessary to make the plan a comprehensive and coherent unit. A two-year program in museology for art history candidates is offered in cooperation with the Detroit Institute of Arts.

In his terminal quarter, a candidate in advertising design, crafts, industrial design, or interior architecture will prepare an exhibition of work executed during the period of graduate study for evaluation by the Art Department.

Minor-cognate credits in Philosophy 0370 or 0571 are required, unless the equivalents were included in the undergraduate degree.

MASTER OF ARTS IN ART HISTORY

Plan A — Forty-eight credits in course work including twelve credits of thesis.

Plan B — Forty-four credits in course work plus an essay.

Admission — The applicant must have an undergraduate degree in art history or equivalent, a minimum B average in undergraduate art history, and two years of college level work in one foreign language (German is preferred).

Candidacy must be established by the time twenty-four credits have been earned.

Degree Requirements — The student is expected to concentrate in one of the major areas: ancient, medieval, renaissance-baroque, nineteenth and twentieth centuries, American, Oriental, ethnographic. The student must pass a comprehensive slide examination.

MASTER OF ARTS IN MUSEOLOGY

Plan A — Ninety credits in course work including twelve credits of thesis.

Admission — Regular admission to the Graduate Division of the University and to the Department of Art and Art History are required. The student must have an undergraduate degree in art history or in a related area with a concentration of work in art history and reading knowledge of one foreign language. Candidates will be selected by the Director of

the Museology Program at Wayne State University and the Co-Director in the Department of Education at the Detroit Institute of Arts in consultation with the art history faculty at the University and the staff of the Detroit Institute of Arts. Admission will be considered only after interviews with the Director and the Co-Director of the Program; the approval of both is necessary for admission.

Candidacy must be established after twenty-four credits in art history have been earned.

Degree Requirements — The program leading to the Master of Arts in Museology is a two-year course of study. The student must complete a minimum of thirty-two credits in art history, twelve credits in thesis work, forty-two credits in museum internship and four elective credits. The student must pass a comprehensive slide examination. Reading knowledge of a second foreign language is required.

MASTER OF FINE ARTS IN ART

Plan B — Forty-eight credits beyond twenty-four graduate credits or the M.A. in art, including three credits in essay.

Plan C — Forty-eight credits beyond twenty-four graduate credits or the M.A. in art. No essay required. Students electing Plan C must complete the requirements of their area of specialization. Specific area requirements are available in the department office.

Admission — Admission to the Master of Fine Arts program in painting, drawing, sculpture, printmaking, ceramics, metal-smithing, weaving, industrial design, interior architecture or advertising design is by invitation to those who have completed a minimum of twenty-four credits toward the Master of Arts degree, or by examination of portfolio and transcripts for those already holding the Master of Arts degree in art. In either case, the M.F.A. degree program demands superior qualifications, potential and commitment as an artist.

Candidacy must be established by the time twenty-four credits have been earned. The applicant must file a copy of his plan of work with his adviser. An applicant becomes a degree candidate only upon recommendation of his advisory committee.

Degree Requirements — The candidate must complete a minimum of forty-eight credits in the M.F.A. program. His course of study should be planned to include at least thirty-two credits of work in his major studio area, eight credits in electives and participation in the continuing Master of Fine Arts Seminar. In addition, the candidate must complete either an essay, the character of which is determined by the student and his advisory committee, or the specific studio area requirements as outlined under Plan C. Full time attendance is required in the program, which generally includes four quarters of work excluding summer. All M.F.A. candidates must meet the following departmental requirements: a terminal exhibition, a final examination of the student and his accumulated work; and submission of a minimum of twelve 2 x 2 transparencies of his work, accompanied by a brief, relevant, written statement.

The program provides the student with opportunity for intensive work toward his personal goals as an artist. The entire departmental graduate staff is available to him for consultation and instruction.

COURSES OF INSTRUCTION¹

Studio Courses (ART)

0101. Drawing I. Cr. 4.

Introductory training in basic drawing skills; inanimate subject matter, simple perspective and composition. Dry drawing media.

0102. Drawing II. Cr. 4.

Prereq: ART 0101. Continuation of Art 0101. More complex subject matter. Dry media continued with introduction to wet media and limited color.

0103. Drawing III. Cr. 4.

Prereq: ART 0102. Continuation of Art 0102. More experimental problems with exposure to complex drawing media. Head studies emphasizing underlying structure.

0125. Design for Non-Art Majors. (2,6). Cr. 4.

Not open to art majors; no credit after ART 0131. Material fee \$10. Exploration of art elements and design principles through composition exercises in two and three dimensions from supplied kits.

0131. Basic Design I. Cr. 4.

Prereq: AH 0100. Principles of design as a foundation for all work in art. Two-dimensional design. Composition in line, shape, value and texture. Creative experimentation with various media and techniques. Laboratory and lecture.

0132. Basic Design II. Cr. 4.

Prereq: ART 0131. Color composition; color systems and phenomena. Laboratory and lecture.

0134. Architectural Drafting. Cr. 4.

Introduction to the basic studio tools and techniques of the architectural profession; use of architectural drafting equipment; line-work and lettering.

0135. Perspective Drawing. Cr. 4.

Prereq: ART 0134. Introduction to construction of isometric, one- and two-point perspective drawings.

Prerequisites for all art and art education majors to the following studio courses (unless otherwise noted): Art History 0100, Art 0103, 0132; written consent of instructor required for all others who may lack these prerequisite courses.

0203. Beginning Life Drawing. Cr. 4.

Prereq: ART 0103. Material fee \$10. Basic life drawing, exploration of structural and visual forms of the human figure.

0204. Life Drawing. Cr. 4.

Prereq: ART 0203. Material fee \$10. Systematic study of the human figure, more complex problems related to the subject. More complex media employed.

0209. Basic Painting. Cr. 4.

Introduction to elementary problems of painting. Various approaches to the technical handling of tools, pigments and processes, through the use of simple painting materials. Basic form observation and analysis.

0210. Beginning Oil Painting. Cr. 4.

Prereq: ART 0209. Structural organization of the painting surface. Individual problems in subject matter. Laboratory and lecture.

0212. Beginning Water Color. Cr. 4.

Prereq: ART 0209. Fundamentals of technical handling of the medium. Subject matter in relation to the medium. Still life and landscape.

0221. Sculpture: Introductory Non-Figurative. Cr. 4.

Material fee \$10. Exploration of three dimensional, non-objective forms; exposure to primary materials, traditional and contemporary concepts. Laboratory, lecture and critique.

0222. Sculpture: Introductory Figurative. Cr. 4.

Material fee \$10. Problems of figuration in sculpture, direct study of the human form. Introduction to casting technique; variety of final materials. Laboratory, lecture and critique.

0232. Basic Design III: Three Dimensional. Cr. 4.

Prereq: ART 0132. Material fee \$5. Organic and structural properties of paper, wood, metal, plastic, and other basic materials. Expressive experimentation. Laboratory and lecture.

0235. Environmental Design. Cr. 4.

Prereq: ART 0132, 0135. Material fee \$5. Abstract (non-programmatic) studies in forming environmental spaces: human scale in relation to form, color and texture; model making techniques.

0236. (FAC 0263) Interior Design: Presentation Techniques. Cr. 4.

Prereq: ART 0101 and 0131 for art majors. Introduction to contemporary media and methods used in the preparation of presentation boards: layout, transfer techniques, methods of lettering, matting, overlays.

0238. Photography. Cr. 4.

Open elective. Lectures, demonstrations, discussions, readings in basic camera techniques using color slide medium. No laboratory.

0239. Photography. Cr. 4* (Max, 12).

Prereq: ART 0238. Material fee \$10. Use of basic techniques acquired in Art 0238 in accordance with elements and principles of art to produce advanced forms of photography.

0244. Advertising Design: Introduction to Lettering, Layout and Commercial Graphic Design. Cr. 4.

Problems in lettering, layout, illustration in contemporary setting; comprehensive layout. Laboratory and lecture.

0245. Advertising Design. Cr. 4.

Prereq: ART 0244. Continuation of Art 0244. Laboratory and lecture.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

*Additional credits may be elected in a given quarter with written consent of instructor.

- 0306. Printmaking. Cr. 4* (Max. 12).**
Material fee \$10. Problems developed from original concepts. Fall: relief printing (woodcut, wood engraving, miscellaneous materials). Winter and Spring: serigraphy (silk screen printing).
- 0309. Composition. (4,2). Cr. 4.**
Prereq: ART 0210, 0212. Traditional and contemporary attitudes toward the organization of pictorial space; experiments in ordering and composing.
- 0310. Oil Painting. Cr. 4.**
Prereq: ART 0210. Continuation of Art 0210. Individual development. Laboratory and lecture.
- 0311. Figure Painting: Oil. Cr. 4.**
Prereq: ART 0204; prereq. or coreq: ART 0310. Material fee \$10. Human form. Utilization of various techniques as a means toward understanding traditional and contemporary aspects.
- 0312. Water Color. Cr. 4.**
Prereq: ART 0212. Continuation of Art 0212. Composition and individual expression. Still life, landscape, figure.
- 0313. Figure Painting: Water Color. Cr. 4.**
Prereq: ART 0204; prereq. or coreq: ART 0312. Material fee \$10. Human form. Utilization of various techniques and materials as a means toward understanding traditional and contemporary aspects of figure painting.
- 0330. Introduction to Industrial Design. Cr. 4* (Max. 12).**
Prereq: ART 0232. Continuation of Art 0232. Material fee \$5. Experimental techniques. Experience with various basic materials and tools in industry. Product analysis and styling concepts. Sketches and models. Lecture, laboratory, field trips.
- 0331. Presentation Techniques. Cr. 4* (Max. 16).**
Material fee \$5. Basic black and white rendering techniques — pastel, felt pen, quick sketching — primarily for industrial and commercial presentation.
- 0334. Interior Design: Home Planning. Cr. 4.**
Open elective. Coordination of architecture, furnishings, decorations. Basic design principles and fundamental relationships of color, texture, pattern, and architectural structure. Decorative and practical treatment of the interior. Lecture.
- 0335. Interior Architecture: Design Introduction. Cr. 4.**
Prereq: ART 0134, 0232 or 0235; 0236 or consent of adviser. Simple office interior: formation of spaces, functional organization, furniture layout, floor and ceiling plans, wall elevations, selection of finishes, colors and furnishings.
- 0338. (SPH 0387) Basic Cinematography Techniques. Cr. 4.**
Material fee \$5. Introduction to principles of cinematography utilizing Super 8mm equipment. Emphasis on cameras, lenses, film stock, screen continuity, and lighting. Projects in silent Super 8mm filmmaking.
- 0339. Exhibition Print Production. Cr. 4.**
Prereq: ART 0239. Material fee \$10. Production of a personal black and white print portfolio of exhibition quality. The perfection of print and negative quality, composition and creativity.
- 0360. Ceramics. Cr. 4.**
Material fee \$20. Introduction to materials and construction, design processes, glazing, firing. Laboratory practice in building pottery by hand. Laboratory and lecture.
- 0362. Introductory Metalsmithing I. Cr. 4.**
Open to majors in archaeology, anthropology, and art history by consent of instructor. Material fee \$10. Tools, techniques and processes used in fabrication, forming and assembly of metal forms.
- 0363. Introductory Metalsmithing II. Cr. 4.**
Prereq: ART 0362. Material fee \$10. Basic metalworking techniques used in raising sheet metal and cast metal forms.
- 0364. Textile Design and Weaving. Cr. 4.**
Group and individual instruction in basic weaving techniques adapted to a simple loom and non-loom projects. General enrichment of weaving.
- 0365. Related Fibers. Cr. 4.**
Material fee \$10. Introduction to the nature and use of fibers. Each term a new treatment related to fibers will be explored; type of process to be announced in *Schedule of Classes*.
- 0500. Foreign Study in Studio Art. Cr. 6-12.**
Prereq: consent of instructor. Work experience in the studio arts in specific geographical areas. New perceptive experiences within artistic and cultural environment of a foreign country. Studio work, field trips to monuments, landmarks, artifacts and museums. Summer only.
- 0501. Anatomy I. Cr. 4.**
Prereq: ART 0204. Material fee \$10. Human anatomy as visual structural form: the skeletal system and movement.
- 0502. Anatomy II. Cr. 4.**
Prereq: ART 0501. Material fee \$10. Human anatomy as visual structural form: the muscular system and superficial characteristics.
- 0503. Advanced Life Drawing. Cr. 4* (Max. 32).**
Prereq: ART 0204 and 0209 or equiv. Material fee \$10. Continuation of Art 0204. Individual drawing directions stressed. Multiple figures, composition, scale exploration. Variety of media.
- 0504. Advanced Drawing. Cr. 4* (Max. 32).**
Prereq: ART 0204. Individual problems stressing optional media and approach; development of personal imagery and concepts. Laboratory, lecture, criticism.
- 0505. Beginning Intaglio Printmaking. Cr. 4.**
Prereq: ART 0204. Material fee \$10. Basic metal plate techniques. Etching, aquatint, engraving, drypoint, soft ground. Laboratory and lecture.
- 0506. Advanced Printmaking: Intaglio. Cr. 4* (Max. 32).**
Prereq: ART 0505. Material fee \$10. Intaglio techniques: multiple and single plate color printing, phototransfer, lift-ground; various experimental techniques. Laboratory, lectures, criticism.
- 0507. Printmaking: Plate Lithography. Cr. 4* (Max. 16).**
Material fee \$10. Fundamentals in dealing with basic technical aspects of black-and-white stone and aluminum plate lithographic printing.
- 0508. Collograph and Advanced Printmaking. Cr. 4* (Max. 32).**
Prereq: ART 0306. Material fee \$10. Built-up intaglio plates, woodcut, wood engraving and serigraphy. Laboratory and lecture.

*Additional credits may be elected in a given quarter with written consent of instructor.

0509. Painting Laboratory. Cr. 4* (Max. 32).

Prereq: ART 0309, 0310 or 0312. Ideas pertinent to experimental materials and traditional media other than oil and water color; choice of media determined by individual needs.

0510. Advanced Oil Painting. Cr. 4* (Max. 32).

Prereq: ART 0309 and 0310. Continuation of Art 0310. Individual problems and experimentation. Laboratory and lecture.

0511. Advanced Figure Painting: Oil. Cr. 4* (Max. 24).

Prereq: ART 0309, 0311 and consent of adviser. Material fee \$10. Continuation of Art 0311. Advanced problems. Laboratory and lecture.

0512. Advanced Water Color. Cr. 4* (Max. 32).

Prereq: ART 0309 and 0312. Continuation of Art 0312. Individual problems and experimentation in related media. Laboratory and lecture.

0513. Advanced Figure Painting: Water Color. Cr. 4.

Prereq: ART 0309, 0313 and consent of adviser. Material fee \$10. Continuation of Art 0313. Advanced problems.

0515. Papermaking. (0,8). Cr. 4.

Material fee \$5. Offered only during the Fall quarter of each academic year. Papermaking for use in various art media.

0516. Interior Architecture: Construction Drawings. Cr. 4.

Prereq: ART 0134, 0335, 0637, 0638. Principles of proper assembly of commercial interiors; construction techniques and preparation of working drawings. (Formerly ART 0337).

0521. Sculpture: Non-Figurative. Cr. 4* (Max. 16).

Prereq: ART 0221 and 0222. Material fee \$10. Progressive problems in non-objective sculpture and materials techniques. Laboratory, lecture and critique.

0522. Sculpture: Figurative. Cr. 4* (Max. 16).

Prereq: ART 0221 and 0222. Material fee \$10. Progressive problems of figuration; use of model for group and individual projects; craft of casting. Laboratory, lecture and critique.

0523. Sculpture: Advanced Technology. Cr. 4* (Max. 16).

Prereq: ART 0521 and 0522. Material fee \$10. Visual aspects and theory derived from studies of technological movements as related directly to sculptural form in time and space.

0529. Sculpture: Professional Practice. Cr. 4.

Prereq: ART 0521 or 0522. Open only to sculpture majors. Art and law in relation to contracts and liability; studio organization and management, health and safety factors, hazards in use of new materials and chemicals and their control. Lecture, laboratory and field work.

0530. Industrial Design. Cr. 4* (Max. 24).

Prereq: ART 0330. Material fee \$5. Design problems in transportation, shelter, furniture, packaging, appliances. Working drawings, presentation sketches, models. Laboratory and lecture.

0531. Industrial Design Presentation. Cr. 4* (Max. 24).

Prereq: ART 0331. Colored rendering in various media: pen and ink, pastel, pencil, tempera, wash; portfolio preparation. Laboratory and lecture.

0532. Advanced Design. Cr. 4.

Prereq: ART 0132. Advanced problems in the organization of form in two dimensions; black and white, color and texture.

0533. Interior Architecture: Space Planning. Cr. 4.

Prereq: ART 0335. Design of complex office layouts involving program analysis, functional relationships, partition and furniture layouts, furnishings and material selection.

0534. Experimental Art Processes. Cr. 4.

Prereq: ART 0132. Open only to art majors. Lectures, demonstrations by experts from technical, scientific and artistic areas.

0535. Art Processes Laboratory. Cr. 4* (Max. 16).

Prereq: ART 0132, 0232. Open only to art majors. Material fee \$10. Laboratory, scheduled intermittently, offering one of many techniques not otherwise available in the department. Particular process offered will be announced in *Schedule of Classes*.

0537. Color Photography. Cr. 4* (Max. 12).

Prereq: ART 0239. Material fee \$20. Theory of color, current color materials and processes with study of historical development of color photography. Practical laboratory and studio work in shooting color transparencies, color negatives, and in color printing. The expressive and emotional qualities of color.

0538. (SPH 0567) Stage Design. Cr. 4* (Max. 8).

Prereq: SPH 0559 and ART 0131. Scenic designer's multiple analysis of a play. Practice in evolving a technique of scenic design by study of selected plays with execution of sketches and working drawings.

0539. Experimental Photography. Cr. 4* (Max. 12).

Prereq: ART 0239. Material fee \$10. Application of photography to design elements. Adaptation of standard techniques and their application to the field of experimentation; the development of new techniques.

0540. Photojournalism. Cr. 4* (Max. 12).

Prereq: ART 0239. Material fee \$10. Techniques of journalistic use of photography. The individual news picture, use of available light, and small camera. The picture story, series and sequence in visual communication. Problems of reproduction of photographs. Line and half-tone reproduction.

0541. Life Photography: Portraiture. Cr. 4* (Max. 12).

Prereq: ART 0239. Material fee \$10. Characterization, posing and the control of light, leading toward various styles and modes.

0542. The Art of Color Photography: Projection Media. Cr. 4* (Max. 12).

Prereq: ART 0238 or consent of instructor. Four credits of lecture weekly supplemented by demonstration motion pictures and slides. Student efforts will be projected in class and criticism will be part of the course. Students will spend at least four hours weekly in color photography and reference reading.

0543. The Art of Cinematography. Cr. 4* (Max. 12).

Prereq: ART 0338. Material fee \$10. Modern technical and creative skills in cinematography, production of individual films.

0544. Advanced Advertising Design. Cr. 4* (Max. 28).

Prereq: ART 0245. Material fee \$10. Continuation of Art 0245. Laboratory and lecture.

0545. Graphic Arts Techniques. Cr. 4* (Max. 12).

Prereq: ART 0245. Contemporary industrial graphic art techniques and procedures presented by workshop demonstration and

*Additional credits may be elected in a given quarter with written consent of instructor.

student projects. Hand type setting, photostat camera work, photographs, offset negative, color key, and offset plate-making. Letterpress and offset printing. Procedural relationships.

0546. Life Photography: Figure. Cr. 4* (Max. 12).

Prereq: ART 0239, 0541; open only to art majors, others by consent of instructor. Material fee \$10. Full figure posing. Control of light in all applications from sculptural to illustrative, ranging from realistic to abstract in interpretation.

0560. Advanced Ceramics. Cr. 4* (Max. 28).

Prereq: ART 0360. Material fee \$30. Individual development with clay by hand or wheel while dealing with technical aspects of clay and glazes, kiln; slide lectures and laboratory demonstrations.

0562. Advanced Metalsmithing. Cr. 4* (Max. 28).

Prereq: ART 0362 and 0363. Material fee \$10. Open media technique and project direction. Individual research; flexible studio work schedule.

0564. Textile Design and Weaving. Cr. 4* (Max. 28).

Prereq: ART 0364. Material fee \$10. Advanced problems to suit the individual; loom and off-loom instruction and design for weaving.

0565. Advanced Related Fibers. Cr. 4* (Max. 28).

Prereq: ART 0365. Material fee \$10. Exploration of processes related to work in fibers; type of process to be announced in *Schedule of Classes*.

0590. Directed Projects: Drawing. Cr. 4* (Undergrad. max. 20, grad. max. 40).

Undergrad. prereq: consent of major adviser and chairman; grad. prereq: consent of adviser and graduate officer. Individual problems.

0591. Directed Projects: Painting. Cr. 4* (Undergrad. max. 20, grad. max. 40).

Undergrad. prereq: consent of major adviser and chairman; grad. prereq: consent of adviser and graduate officer. Individual problems.

0592. Directed Projects: Sculpture. Cr. 4* (Undergrad. max. 20, grad. max. 40).

Undergrad. prereq: consent of major adviser and chairman; grad. prereq: consent of major adviser and graduate officer. Individual problems.

0593. Directed Projects: Design. Cr. 4* (Undergrad. max. 20, grad. max. 40).

Undergrad. prereq: consent of major adviser and chairman; grad. prereq: consent of major adviser and graduate officer. Individual problems.

0594. Directed Projects: Advertising Design. Cr. 4* (Undergrad. max. 20, grad. max. 40).

Undergrad. prereq: consent of major adviser and chairman; grad. prereq: consent of major adviser and graduate officer. Individual problems.

0595. Directed Projects: Printmaking. Cr. 4* (Undergrad. max. 20, grad. max. 40).

Undergrad. prereq: consent of major adviser and chairman; grad. prereq: consent of major adviser and graduate officer. Individual problems.

0596. Directed Projects: Crafts. Cr. 4* (Undergrad. max. 20, grad. max. 40).

Undergrad. prereq: consent of major adviser and chairman; grad. prereq: consent of major adviser and graduate officer. Individual problems.

0597. Directed Projects: Photography. Cr. 4* (Undergrad. max. 20, grad. max. 40).

Undergrad. prereq: consent of major adviser and chairman; grad. prereq: consent of major adviser and graduate officer. Individual problems.

0598. Directed Projects: Industrial Design. Cr. 4* (Undergrad. max. 20, grad. max. 40).

Undergrad. prereq: consent of major adviser and chairman; grad. prereq: consent of major adviser and graduate officer. Individual problems.

0599. Directed Projects: Interior Architecture. Cr. 4* (Undergrad. max. 20, grad. max. 40).

Undergrad. prereq: consent of major adviser and chairman; grad. prereq: consent of major adviser and graduate officer. Individual problems.

0601. Still Life and Landscape Drawing. Cr. 4* (Max. 12).

Prereq: ART 0203. Personal exploration of still life and landscape imagery through varied drawing media and experimentation. Studio work, slide lectures and field trips around Detroit.

0607. Advanced Lithography: Plate. Cr. 4* (Max. 32).

Prereq: ART 0507. Material fee \$10. Lithography on plates, transfer paper, black-and-white, and color printing. Paper-making on hand operated paper mill.

0608. Printmaking: Cliche Verre. Cr. 4* (Max. 32).

Open only to seniors and graduates. Material fee \$10. Newly developed technique in printmaking; tools and techniques for graduate studies of the fine print. (Formerly Art 0707).

0621. Sculpture: Non-Figurative. Cr. 4* (Max. 20).

Prereq: ART 0521, 0522; prereq. or coreq: ART 0523. Open only to sculpture majors with B average in sculpture and acceptable portfolio. Material fee \$10. Professional orientation, advanced concepts and skills. Lecture, laboratory, and critique.

0622. Sculpture: Figurative. Cr. 4* (Max. 20).

Prereq: ART 0521, 0522; prereq. or coreq: ART 0523. Open only to sculpture majors with B average in sculpture and acceptable portfolio. Material fee \$10. Professional orientation, advanced concepts and skills. Lecture, laboratory, and critique.

0630. Transportation Design. Cr. 4* (Max. 24).

Prereq: 12 credits in ART 0530. Material fee \$10. Individual and class projects in land or water transportation design from concept to model or comprehensive presentation.

0636. Interior Architecture: Adaptive Use. Cr. 4*.

Prereq: ART 0235. Architectural design problem involving the adapting of an existing building to a new interior use; individual problems.

0637. Interior Architecture: Architectural Systems. Cr. 4.

Survey of the manufactured ingredients of architectural interiors: doors, hardware, wall systems, modern wall and floor finishes, ceiling systems, specialties and accessories.

*Additional credits may be elected in a given quarter with written consent of instructor.

0638. Interior Architecture: Environmental Technology. Cr. 4.
Principles of structural, mechanical and electrical systems as they affect the design of architectural spaces.

0639. Interior Architecture: Senior Projects. Cr. 4.
Prereq: ART 0516, 0533, 0636. Open only to senior interior architecture students. Final design project; student selects his own problem. Individual criticism.

0640. Interior Architecture: The Environment As An Art Form. (1,7). Cr. 4.
For senior or graduate art majors. Design of interior spaces in which primary emphasis is on artistic or decorative potential of the human environment and on the role of the artist as participant in the architectural design process.

0702. Graduate Life Drawing. Cr. 4* (Max. 16).
Prereq: ART 0503. Material fee \$10. Advanced problems in drawing, employing the human figure as subject matter. Individual directions, concepts and media.

0704. Advanced Problems in Drawing. Cr. 4* (Max. 32).
Prereq: ART 0504. Advanced problems in non-figurative drawing; individual directions, concepts and media.

0706. Advanced Printmaking. Cr. 4* (Max. 32).
Prereq: ART 0506. Material fee \$10. Advanced projects. Experimental media.

0709. Advanced Painting Laboratory. Cr. 4* (Max. 32).
Prereq: ART 0509. Diverse media other than oil or water color; painting ideas relating to the individual's needs.

0710. Advanced Oil Painting. Cr. 4* (Max. 32).
Prereq: ART 0510. Individual projects. Laboratory, lecture, criticism.

0712. Advanced Water Color. Cr. 4* (Max. 32).
Prereq: ART 0512. Still life, landscape, figure composition.

0721. Advanced Non-Figurative Sculpture. Cr. 4* (Max. 32).
Prereq: ART 0621 or equiv. Material fee \$10.

0722. Advanced Figurative Sculpture. Cr. 4* (Max. 32).
Prereq: ART 0622 or equiv. Material fee \$10.

0728. Photography and Cinematography: Advanced Production. Cr. 4* (Max. 16).
Prereq: 12 credits in 0500 level photography courses. History of cinematography and photography, their sociological impacts, past and present; an evaluation of the opportunities of the future; correlating technical skills, functional concepts and creativity.

0729. Architectural and Industrial Photography. Cr. 4.
Prereq: view camera and portraiture experience, access to view or press camera. Material fee \$10. Intensive study; use of large format cameras. Architectural and interior-industrial photography.

0730. Graduate Industrial Design. Cr. 4-8* (Max. 36).
Prereq: ART 0530. Material fee \$10. Specialized work, individual study and comprehensive major project.

0732. Advanced Design. Cr. 4.
Prereq: ART 0132. Material fee \$10. Organization of form in two dimensions; black and white, color and texture; graduate problems.

0736. Advanced Interior Architecture. Cr. 4* (Max. 32).
Prereq: ART 0516, 0533, 0636, 0637, 0638. Continuation of Art 0639.

0737. Advanced Color Photography. Cr. 4.
Prereq: ART 0537, 0539 or consent of adviser. Material fee \$25. Preparation in mechanics of all color processes, with exception of dye transfer.

0744. Advanced Commercial Design. Cr. 4* (Max. 32).
Prereq: 20 credits in ART 0544. Material fee \$10. Continuation of Art 0544.

0746. Advanced Figure Photography. Cr. 4.
Prereq: ART 0541, 0546 or consent of instructor. Material fee \$10. Figure photography in both black and white and in color. Individual attention in developing style.

0760. Advanced Ceramics. Cr. 4* (Max. 32).
Prereq: ART 0560. Material fee \$35. Specific methods of using clay in terms of objects, forms or environments; slide lectures and laboratory demonstrations.

0762. Advanced Metalcraft. Cr. 4* (Max. 32).
Prereq: ART 0562. Material fee \$10. Continuation of Art 0562.

0764. Advanced Textile Design and Weaving. Cr. 4* (Max. 32).
Prereq: ART 0564. Material fee \$10. Continuation of Art 0564. More advanced problems in weaving and design for weaving; specialized work, individual study and portfolio preparation.

0765. Advanced Related Fibers. Cr. 4* (Max. 32).
Prereq: ART 0565. Material fee \$10. Advanced work in application of processes in work with fibers. Topics to be announced in *Schedule of Classes*.

0798. Seminar in Art. Cr. 3.
Prereq: consent of chairman. Directed reading, research, bibliography.

0799. Master's Essay Direction. Cr. 3-4.
Prereq: consent of adviser.

0870. Master of Fine Arts Projects. Cr. 3-4.
Prereq: consent of adviser. Open only to M.F.A. candidates. Execution of specific advanced projects as determined by adviser and M.F.A. candidates advisory committee under Plan C.

0880. Independent Study: Drawing. Cr. 4-8 (Max. 40).
Open only to M.F.A. students. Extended problems in drawing; individual research with twelve to twenty-four hours of laboratory.

0881. Independent Study: Painting. Cr. 4-8 (Max. 40).
Open only to M.F.A. students. Extended problems in painting; individual research with twelve to twenty-four hours of laboratory.

0882. Independent Study: Sculpture. Cr. 4-8 (Max. 40).
Open only to M.F.A. students. Extended problems in sculpture; individual research with twelve to twenty-four hours of laboratory.

0885. Independent Study: Printmaking. Cr. 4-8 (Max. 40).
Open only to M.F.A. students. Extended problems in printmaking; individual research with twelve to twenty-four hours of laboratory.

*Additional credits may be elected in a given quarter with written consent of instructor.

0886. Independent Study: Crafts and Design. Cr. 4-8 (Max. 40).
Open only to M.F.A. students. Extended problems in crafts or design; individual problems with twelve to twenty-four hours of laboratory.

0898. Master of Fine Arts Seminar. Cr. 1 (Max. 4).
Open only to M.F.A. students. Concepts of art; problems of contemporary art.

0899. Master's Thesis Research and Direction. Cr. 6*
(12 required).
Prereq: consent of adviser.

Art History (A.H.)

0100. Introduction to the Elements of Art. Cr. 4.
Nonhistorical introduction on a comparative basis. Typology of architecture, sculpture, painting.

0101. Great Art of the World. Cr. 4.
This course will not satisfy art history requirement for studio art majors, but may be taken as an elective in art history. Presentation and discussion of representative monuments and artists of the major periods and regions stressing the artistic function and character of the works of art as a part of the continuum of civilization.

0210. Ancient and Classical Art. Cr. 4.
(Former Art History 0110)

0211. Medieval and Renaissance Art. Cr. 4.
(Former Art History 0111)

0212. Baroque and Modern Art. Cr. 4.
(Former Art History 0112)

0214. Survey of Arts of India and Southeast Asia. Cr. 4.
Prereq: A H 0100 or consent of instructor. Major monuments and styles to the nineteenth century.

0215. Survey of Arts of China. Cr. 4.
Prereq: A H 0100 or equiv. or consent of instructor. Major monuments and styles.

0216. Survey of Arts of Japan. Cr. 4.
Prereq: A H 0100 or equiv. or consent of instructor. Major monuments and styles.

0220. Survey of African, Oceanic, American Indian Art History. Cr. 4.

Major styles of the cultural groups of Africa, pre-conquest Americas, and the Pacific Ocean basin.

0230. Survey of Far Eastern Ceramics. Cr. 4.
Ceramic wares of China, Korea, Japan and Southeast Asia from neolithic times to the nineteenth century; development of forms, techniques, glazes and decoration.

0240. Survey of Western Architecture. Cr. 4.
Major styles of architecture from the time of the civilizations of Egypt and Mesopotamia to the present day.

0250. Art Media: History and Techniques. Cr. 4.
Media and techniques of sculpture, painting, graphics, ceramics and other art forms in the Western, Asian, African and Oceanic traditions presented from an historical perspective.

0275. The Art Museum: History and Functions. Cr. 2.
History, organization and function of an art museum; its educational and community goals; related problems of connoisseurship, acquisition, research, installation, conservation. (Former Art History 0675)

0300. Art in the United States. Cr. 4.
Prereq: A H 0212. Art and architecture from Colonial times to the present.

0345. Modern Architecture. Cr. 4.
From Walpole to Harris: the revolt against Renaissance ideals in favor of developing an organic architecture.

0350. Signs and Symbols in World Art. Cr. 4.
Major themes and symbols in Christian, Islamic, Hindu and Buddhist art as well as in the arts of Ancient Egypt, the Ancient Near East, Greece, Rome, Africa and Oceania.

0390. The Romantic Age. Cr. 4.
Exploration of the Romantic spirit in the art and architecture of Europe and America between 1760 and 1860.

0501. Architecture: Its Preservation and Restoration. Cr. 4.
Philosophical, political and economic bases; functions and goals of preservation agencies and legislation; direct experience in architectural and historical research and in restoration techniques used by craftsmen.

0503. (N E 0503) Great Cities of the Near East. Cr. 4.
Illustrated survey of the great cities of the Near East from the birth of urban civilization in Mesopotamia to modern times. Urban centers of the ancient Near East: Mecca, Bagdad, Cairo, Jerusalem and other cities.

0507. Early Egyptian Art and Archaeology. Cr. 2.
Prereq: A H 0210 or consent of instructor. Pre-dynastic to Middle Kingdom.

0508. Later Egyptian Art and Archaeology. Cr. 2.
Prereq: A H 0507 or consent of instructor. Middle Kingdom to Roman Occupation.

0510. Biblical Archaeology. Cr. 4.
The Bible and archaeology in the light of recent research.

0514. Art of the Ancient Near East. Cr. 4.
Neolithic through Achaemenian art.

0515. Classical Art and Archaeology. Cr. 4.
Aegean through Hellenistic.

0516. Etruscan and Roman Art. Cr. 4.
Development and transformation of art and architecture in Etruria and Rome.

0519. Early African Art. Cr. 4.
Prereq: consent of instructor. Various arts and their use in Sub-Saharan African culture, as well as prehistoric art and cultures of the Sudan, Guinea Coast through Ghana.

0520. Later African Art. Cr. 4.

Prereq: A H 0220 or 0519 or consent of instructor. Arts of Sub-Saharan Africa from Nigeria through Central and South Africa.

0521. Ethnographic Art. Cr. 4.

Prereq: A H 0220 or 0519. African, Oceanic, and pre-Columbian art.

0522. Oceanic and American Indian Art. Cr. 4.

Prereq: A H 0220. Polynesia, Micronesia, Melanesia, and Amerindian cultures.

0531. Early Chinese Painting. Cr. 4.

Prereq: A H 0215 or consent of instructor. From beginnings through Sung Dynasty.

0532. Later Chinese Painting. Cr. 4.

Prereq: A H 0215 or consent of instructor. From Yuan Dynasty to 1966.

0533. Selected Studies in Chinese Painting. Cr. 4.

Prereq: A H 0532 or consent of instructor. Artistic trends in later Chinese painting.

0534. Early Japanese Art. Cr. 4.

Prereq: A H 0215 or 0216 or consent of instructor. Development of Japanese painting, sculpture, and architecture from pre-historic times through the Kamakura period.

0535. Later Japanese Art. Cr. 4.

Prereq: A H 0215 or 0216 or consent of instructor. Development of Japanese painting, architecture, and woodblock prints from the Ashikaga through the Edo periods.

0540. Early Christian Art. Cr. 4.

Prereq: A H 0211. From the late second century to the end of the fifth century.

0542. Gothic Architecture. Cr. 4.

Prereq: A H 0211 or consent of instructor. History of Gothic architecture in Western Europe from its origin in the mid-twelfth century to the middle sixteenth century.

0543. Survey of Jewish Art (N E 0513). Cr. 4.

Jewish participation in the arts from antiquity to the present.

0545. Romanesque Architecture. Cr. 4.

Prereq: A H 0211 or consent of instructor. History of architecture in Western Europe from the Dark Ages through the twelfth century.

0547. Selected Studies in Medieval Art. Cr. 4.

Prereq: A H 0211 or consent of instructor. Various trends in Romanesque and Gothic art and architecture.

0548. The Illuminated Manuscript. Cr. 4.

From classical antiquity to the age of printing.

0551. Early Renaissance in Italy. Cr. 4.

Prereq: A H 0211. Thirteenth century to the fifteenth century.

0552. High Renaissance and Mannerism in Italy. Cr. 4.

Prereq: A H 0211 or consent of instructor. The late fifteenth and sixteenth centuries; the Mannerists.

0560. The Renaissance in Northern Europe: Fourteenth and Fifteenth Centuries. Cr. 4.

Prereq: A H 0211 or consent of instructor. Northern painting from its sources in the France-Flemish manuscript tradition and Bohemian schools to the great masters of the fifteenth century, such as, Van Eycks, the Master of Flemalle, Roger van der Weyden, Stephan Lochner and Konrad Witz.

0561. The Renaissance in Northern Europe: Sixteenth Century. Cr. 4.

Prereq: A H 0211 or consent of instructor. Northern European painting and sculpture from ca. 1475 to 1600; great masters, such as Bosch, Bruegel, Riemenschneider, Durer, Grunewald and Holbein.

0562. Dutch and Flemish Painting of the Seventeenth Century. Cr. 4.

Prereq: A H 0212 or consent of instructor. Work of Rembrandt, Hals, Vermeer and Rubens.

0576. Baroque in Italy, Spain and France. Cr. 4.

Prereq: A H 0212. History of the Baroque movement.

0577. Baroque and Rococo in Germany and Austria. Cr. 4.

Art and architecture of these periods.

0580. Art Slide Curatorship. Cr. 1.

Prereq: background in studio art, art history or library science. Functions of the Art Slide Library; responsibilities of the Curator; survey of problems and methods of acquisition and maintenance of art slide collections.

0591. Nineteenth Century Painting in Paris. Cr. 4.

Prereq: A H 0212. Classicism, Romanticism and Realism.

0595. Modern Painting in France. Cr. 4.

Prereq: A H 0212 or consent of instructor. Post-Impressionism and Symbolism to the World War II period.

0597. Modern European Painting Outside France. Cr. 4.

Prereq: A H 0595 or consent of instructor. Developments in Germany, Holland, Russia, Italy and England, from the Symbolist period to World War II.

0600. Art and Architecture in America from Jamestown to the Civil War (HIS 0628). Cr. 4.

0601. Art and Architecture in America from Lincoln to Woodrow Wilson (HIS 0629). Cr. 4.

0602. Art and Architecture in America from Harding to the Present (HIS 0630). Cr. 4.

0604. Twentieth Century American Painting. Cr. 4.

Prereq: A H 0300, 0595 or 0597. Major developments in modern American painting from the period of the Armory Show through the art of the Sixties.

0609. Special Studies in Egyptian Art. Cr. 2.

Prereq: A H 0507 or 0508 or consent of instructor. Problems in architecture, painting, drawing, sculpture; themes and motifs. Topics to be announced in the *Schedule of Classes*.

0617. Byzantine Art. Cr. 4.

Art and architecture from the sixth century until the fall of the Byzantine Empire.

0619. Art and Architecture of Great Britain, 1715-1815. Cr. 4.
Prereq: A H 0212. Significant developments.

0620. Art and Architecture of France, 1715-1815. Cr. 4.
Painting, sculpture, architecture and the decorative arts of France in relation to French literature and history.

0621. Art and Architecture of Austria, Germany, Scandinavia, Poland and Russia, 1715-1815. Cr. 4.
Prereq: A H 0212. Major artistic developments.

0630. Buddhist Art. Cr. 4.
Prereq: A H 0214 or 0215 or 0216. Development of Buddhist art and iconography.

0635. The Japanese Print. Cr. 4.
Prereq: A H 0216 or 0534 or consent of instructor. Development of techniques, styles and themes in the history of Japanese print from the seventeenth through the nineteenth centuries.

0641. Medieval Sculpture. Cr. 4.
Prereq: A H 0211 or consent of instructor. Development of sculpture in Western Europe from the sixth through the fourteenth centuries.

0648. Art History Pedagogy. Cr. 4.
Prereq: 12 credits in art history. Presentation and teaching of art history, its structure, bibliography and resources.

0680. Museum Practices. Cr. 4-8.
Prereq: consent of adviser and participating museum. Open only to majors. On-the-job training in museum research and procedures.

0682. Art Archives Practices. Cr. 4* (Max. 12).
Prereq: consent of adviser and Archives of American Art. Open only to art history majors. On-the-job training in the Archives of American Art, Detroit Institute of Arts.

0690. Dada and Surrealism. Cr. 4.
Literary and artistic history of these two movements; their development in Germany, France and America from the Battle of Verdun in 1916 until the death of Andre Breton in 1966.

0697. Senior Seminar. Cr. 4 (Max. 12).
Open only to senior art history majors. Research projects.

0701. Museum Internship I. Cr. 4-16 (Max. 16).
Prereq: admission to Museology Program. First year of graduate internship at Detroit Institute of Arts.

0702. Museum Internship II. Cr. 6-10 (Max. 26).
Prereq: A H 0701. Second year of graduate internship at Detroit Institute of Arts.

0710. Cave Art. Cr. 4* (Max. 12).
Paleolithic arts of Europe and Asia. Topics to be announced in *Schedule of Classes*.

0714. Studies in Ancient Near Eastern Art. Cr. 4* (Max. 12).
Prereq: A H 0514. The early first millennium in Western Asia. Topics to be announced in *Schedule of Classes*.

0720. Studies in Early Christian Art. Cr. 4* (Max. 12).
Prereq: A H 0540. Critical examination of stylistic and iconographic sources; theories of origin. Topics to be announced in *Schedule of Classes*.

0725. Studies in American Art. Cr. 4* (Max. 12).
Prereq: sequence in American art or consent of instructor. Research in the Archives of American Art. Topics to be announced in *Schedule of Classes*.

0730. Studies in African Art. Cr. 4* (Max. 12).
Prereq: A H 0520. Concentration in selected cultural area. Topics to be announced in *Schedule of Classes*.

0732. Studies in Oceanic and Amerindian Art. Cr. 4* (Max. 12).
Prereq: A H 0522. Concentration in selected cultural areas. Topics to be announced in *Schedule of Classes*.

0735. Studies in Asiatic Art. Cr. 4* (Max. 12).
Prereq: consent of instructor. Problems in architecture, gardens, ceramics, and painting. Topics to be announced in *Schedule of Classes*.

0745. Special Studies in Medieval Art. Cr. 4* (Max. 12).
Prereq: consent of instructor. Problems and research in Medieval art. Topics to be announced in *Schedule of Classes*.

0747. Problems in Medieval Art. Cr. 4* (Max. 12).
Prereq: A H 0542, 0545 or consent of instructor. Problems of architecture and sculpture of the Romanesque and Gothic eras. art. Topics to be announced in *Schedule of Classes*.

0765. Studies in Northern Renaissance Art. Cr. 4* (Max. 12).
Prereq: consent of instructor. Problems and research in the art of Northern Europe during the Renaissance. Topics to be announced in *Schedule of Classes*.

0783. Art Historical Methodology. Cr. 4.
Critical analysis of the formal, iconographic, psychological and economic approaches to art history.

0795. Studies in Modern Art. Cr. 4* (Max. 12).
Prereq: consent of instructor. Research in painting and sculpture of the nineteenth and twentieth centuries in Europe and America. Topics to be announced in *Schedule of Classes*.

0797. Seminar in Art History. Cr. 4* (Max. 12).
Prereq: consent of instructor. Directed readings and research.

0799. Master's Essay Direction. Cr. 3-4.
Prereq: consent of adviser.

0899. Master's Thesis Research and Direction. Cr. 2-12 (12 required).
Prereq: consent of adviser.

*Additional credits may be elected in a given quarter with written consent of instructor.

BIOLOGY

Office: 210 Science Hall

Chairman: John D. Taylor

Vice Chairman: John W. Cosgriff, Jr.

Academic Services Officer: Lynne M. Aldrich

PROFESSORS

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ASSOCIATE PROFESSORS

Kuo-Chun Chen, John W. Cosgriff, Jr., David M. DeForest (Emeritus), Hector R. C. Fernandez, Roman W. Harkaway, Willis W. Mathews, Jessie L. Metcalf (Emeritus), William S. Moore, Curtis J. Swanson, Rosario R. Theodoro

ASSISTANT PROFESSORS

Gregory A. Antipa, Robert Arking, Chester T. Duda, R. Anton Hough, Leo S. Luckinbill, Philip D. Morse, II, William E. Timberlake, John W. Wireman

ADJUNCT PROFESSORS

Thomas J. Curtin, Alfred G. Edward, Samuel B. Horowitz

DEGREE PROGRAMS

Bachelor of Arts — with a major in biology

Bachelor of Science in Biology

Master of Science — with a major in biology and specializations in general biology, bacteriology, botany, zoology

Doctor of Philosophy — with a major in biology and specializations in bacteriology, botany, zoology

The primary role of the department is the presentation and interpretation of biological systems. The knowledge by which educated man understands himself and his living environment constitutes the core of biological training for the liberal arts student and forms the basis for training professional biologists and preprofessional aspirants to related scientific arts.

BACHELOR OF ARTS

Major Requirements — Students contemplating a major program in biology should consult with the undergraduate departmental adviser no later than the beginning of the sophomore year. The major program incorporates all of the regular College Group Requirements.

All students are required to complete Biology 0103, 0140, 0160, and 0220, or their equivalents, before declaring a biology major.

Students must have an over-all grade point average of at least 2.0 (and at least a 2.0 average in previous biology courses) before being admitted to the major program. A grade point average of C (2.0 h.p.a.) must be maintained for all work within the major field. All students in biology are required to take Chemistry 0107 and 0108. An additional thirty-six quarter credits in biology courses are required of the major, including one of two core course sequences: Zoology (Biology 0271, 0507 and 0566) or Botany (Biology 0251, 0507 and 0546). Courses through the 0600 level may be elected providing the proper prerequisites have been taken. No course having "8" as the third digit may be used for departmental major credit. At least eighteen of the thirty-six credits must be taken in residence.

BACHELOR OF SCIENCE

The same introductory and core requirements for the Bachelor of Arts (above) apply for the Bachelor of Science Program Number One. Only French, German, Spanish and Russian will satisfy the requirement for the foreign language in either B.S. program. Either B.S. program will fulfill professional school requirements. The two programs require completion of Liberal Arts Group Requirements.

Required Cognate Courses for the B.S. Degree — It is required that a biology major include Chemistry 0227, Physics 0215 or 0219, and Mathematics 0212 or 0215 in his curriculum. Majors should take the placement examination of the Department of Mathematics no later than the second quarter of their sophomore year.

Combined Degree with Dentistry and Medicine — Students majoring in biology who are candidates for a combined degree must complete the same requirements listed above for biology majors except that a minimum of eighteen credits in biology beyond Introductory Biology is required.

Over-Age Credits — A student attempting to complete a biology major after a prolonged period of interruption of his education may find some of the course work in biology is out of date. In this case, the record will be reviewed and the department may require him to fulfill biology course requirements existing at the time of his return.

Bachelor of Science in Biology

Suggested Program One¹

First Year		
Fall Quarter	Winter Quarter	Spring Quarter
BIO 0103 ... 5	BIO 0140 ... 5	BIO 0160 ... 5
CHM 0107 ... 4	CHM 0108 ... 5	CHM 0110 ... 4
Language ² ... 4	ENG 0150 ... 4	English ... 4
	Language ... 4	Language ... 4
13	18	17

¹ This program requires completion of core courses as in the Bachelor of Arts program.

² Language: French, German, Spanish or Russian required.

Second Year

MAT 0180 ... 5	MAT 0211 or	CHM 0227* ... 3
or MAT 0211 4	MAT 0212 ... 4	CHM 0228 ... 3
BIO 0220 ... 4	CHM 0226 ... 4	Group Elective 4
Language ... 4	Biology ... 4	Biology ... 3
CHM 0224 ... 4	Group Elective 4	
16-17	16	13

Third Year

Biology ... 4-7	Biology ... 4-5	Biology ... 4-7
PHY 0213 ... 4	PHY 0214 ... 4	PHY 0215 ... 4
Group Elective 4	Group Elective 4	Group Elective 4
12-15	12-13	12-15

Fourth Year

BIO 0594 ... 1	BIO 0594 ... 1	BIO 0594 ... 1
BIO 0596 ... 2	BIO 0596 ... 2	Biology or
Biology or	Biology or	Elective ... 10
Elective ... 4	Elective ... 8	Group Elective 4
Group Elective 8	Group Elective 4	
15	15	15

Special Major in Biophysics

Major Requirements for Students Specializing in Biophysics

1. Students contemplating a major program in biophysics should consult with the undergraduate departmental adviser at the beginning of the freshman year or when transferring from outside the University or from another curriculum within the University. The major program incorporates all the regular college group requirements including a foreign language for the B.S. degree. Students are urged to include the departmental core subjects in the course of study.
2. Biology 0103, 0140, 0160, 0220, 0616, and an additional twenty quarter credits are required. No course having "8" as the third digit may be used for departmental major credit.
3. Mathematics 0211 through 0215 are required.
4. Physics 0217 through 0219 and an additional four credits in physics are required.
5. Chemistry 0107, 0108, 0110, 0224, 0226, 0227, 0412, 0540, 0542 and 0544 are required.
6. In the senior year, students should enroll in at least two quarters of Biology 0596.

* Required for pre-medicine. Certain medical schools also require Chemistry 0412. Quantitative Analytical Chemistry, three credits, and strongly recommend physical chemistry.

† Required for pre-professional schools.

Bachelor of Science in Biology

Suggested Program Two

The purpose of this undergraduate biophysics specialty is to encourage students to obtain a broader background in physico-chemical sciences for advanced studies in biophysics as well as in biology.

Students are strongly urged to complete the departmental core requirements.

First Year

Fall Quarter	Winter Quarter	Spring Quarter
BIO 0103 ... 5	BIO 0140 or	BIO 0140 or
CHM 0107 ... 4	BIO 0160 ... 5	BIO 0160 ... 5
ENG 0150 ... 4	English ... 4	Group Elective 4
Language ... 4	CHM 0108 ... 5	CHM 0110 ... 4
17	Language ... 4	Language ... 4
	18	17

Second Year

MAT 0180 ... 5	MAT 0211 or	MAT 0212 or
or MAT 0211 4	MAT 0212 ... 4	MAT 0213 ... 4
CHM 0224 ... 4	CHM 0226 ... 4	CHM 0228* ... 3
Language ... 4	CHM 0227 ... 3	Elective ... 4
BIO 0220 ... 4	Group Elective 4	Group Elective 4
16-17	15	15

Third Year

PHY 0217 ... 5	PHY 0218 ... 5	PHY 0219 ... 5
MAT 0213 or ... 4	MAT 0214 or ... 4	MAT 0215 or ... 4
MAT 0214 ... 4	MAT 0215 ... 4	Elective ... 4
CHM 0412 ... 4	Biology	BIO 0616 ... 4
Biology	Elective ... 4	
Elective ... 4		13
17	13	

Fourth Year

CHM 0540 ... 3	CHM 0542 ... 3	CHM 0544 ... 3
BIO 0594 ... 1	BIO 0594 ... 1	BIO 0594 ... 1
BIO 0596 ... 2	BIO 0596 ... 2	Elective ... 6
Physics	Group Elective 4	Group Elective 4
Elective ... 4	Group Elective 4	
Group Elective 4		14
14	14	

Honors Program

for Liberal Arts students only

Honors students in the Department of Biology are required to take the following courses:

1. *Honors section of the introductory courses.* (Biology 0103, 0140, 0160, and 0220). Regular sections of these courses may not be substituted.

2. *Biology core courses for the B.S. and B.A. degrees.*

3. *Biology 0590 (Honors Research in Biology).* A research project under the direction of a member of the graduate faculty is required. Students should select and obtain the permission of this faculty member during the last term of the sophomore year, upon consultation with their honors adviser. This course is open only to junior or senior biology majors in Liberal Arts Honors Program.

4. *Biology 0595 (Senior Seminar: Honors Program).* A weekly seminar given in conjunction with the Graduate Seminar (Biology 0895) of the department.

5. The completion of one 0400-level interdisciplinary seminar offered by the Honors Program is required.

Upon reaching senior status, honors students, in consultation with the honors adviser, commence preparation of a terminal essay, satisfactory completion of which assures them of honors graduation, providing their performance in the required courses is at honors level. The essay's acceptability is determined by the chairman, the honors adviser and appropriate faculty. Upon completion of the essay students receive three credits for Biology 0599 (Terminal Honors Essay).

Advising will be accomplished by the Biology Department adviser, in consultation with the honors adviser.

Students must have an over-all honor point average of at least 3.1 and an honor point average of at least 3.1 in the major to obtain honors graduation certification. *Students with an over-all average of 3.5 may also be accepted in this program without having had introductory honors courses.*

MASTER OF SCIENCE

Plan A — Thirty-six credits in course work plus a thesis.

Plan C — Forty-five credits in course work, approximately half of which are from a prescribed core program.

Admission — Applicants are expected to have demonstrated proficiency in the baccalaureate program (honor point average of 2.6 or better) including adequate preparation in biology (major recommended) and supporting courses in chemistry, physics, and mathematics. Normally the entering student will be expected to have fulfilled the equivalent of the requirements for the bachelor's degree at Wayne State and to satisfy any deficiencies by examination or course work before becoming a candidate for the advanced degree.

The Graduate Record Examination and the Advanced Test in Biology are required as counseling aids in preparing the student's plan of study. Prospective graduate majors should consult the Chairman of the Departmental Committee on Graduate Study prior to registration.

Candidacy must be established by the time eighteen credits have been earned. Applicants become degree candidates only

upon recommendation by the graduate adviser with the approval of the departmental chairman.

Degree Requirements — Courses required will vary with preparation and fields of specialization. These will be determined by the student's graduate adviser with approval of the department chairman. *Under Plan A*, twelve credits of the required forty-eight must be in original laboratory or field research under the direction of the student's major professor. A final oral examination is required based on the candidate's course work and research. Students enrolled in *Plan C* must elect one course from each of the following six areas: ecology, statistics, genetics and development, evolution, biophysics, and physiology. At least two of the elections must be courses with laboratory sections.

DOCTOR OF PHILOSOPHY

Admission — In addition to the requirements of the Graduate Division, the applicant must present a bachelor's or master's degree with a major in biology or some subdivision thereof. Course work should include the fields of genetics, morphology, physiology, and supporting courses in physics, chemistry, and mathematics.

Applicants must take the Graduate Record Examination and the Advanced Test in Biology and be accepted by the Biology Department Graduate Admissions Committee.

Degree Requirements — In addition to those stated on page 243, the language requirements should be completed by the second year of graduate work. A candidate for the Ph.D. degree in the Department of Biology is required to demonstrate proficiency in one foreign language. The choice of the foreign language is to be made by joint concurrence of the student, his adviser and his doctoral committee. The student may demonstrate his language proficiency by either of the following: a) satisfactory performance on a standardized (Educational Testing Services) examination, or on a special on-campus examination in any language not tested by Educational Testing Services; b) satisfactory completion (grade C or better) of undergraduate course work through the sophomore level (fourth semester or sixth quarter) at any accredited college or university in the language offered to meet the Ph.D. requirement. Evidence of the student's having "placed out" of any or all undergraduate courses through the sophomore level will constitute partial or full satisfaction of the Ph.D. foreign language requirement. The final qualifying examination is to be completed at least one year before the final doctoral examination. Each graduate student will be expected to serve at least three quarters as a teaching assistant in the department. Continuance in the doctoral program depends upon satisfactory progress as determined by the student's advisory committee with the departmental chairman as an ex-officio member.

Assistantships and Scholarships — Teaching and research assistantships and scholarships are available to qualified graduate students. Inquiries and applications should be directed to the Chairman, Department of Biology.

BIOLOGY DEPARTMENT NUMBERING SYSTEM

The first digit of all courses is a zero.

The second digit conforms to the University course numbering system.

The third digit indicates subject matter as follows:

- 0 and 1 Courses equally applicable to all subdivisions of biology.
- 2 and 3 Courses specifically concerned with the field of bacteriology.
- 4 and 5 Courses specifically concerned with the field of botany.
- 6 and 7 Courses specifically concerned with the field of zoology.
- 8 Courses not open to biology majors; see specific courses for other restrictions.
- 9 Courses with a third digit of 9 are seminars and directed study courses carrying major credit in the department.

COURSES OF INSTRUCTION¹ (BIO)

0100. Man and His Environment. Cr. 3.

Not for major credit. Current treatment of the relationship between man and his constantly changing environment.

0103. Introductory Biology. (4,4). Cr. 5.

Must be satisfactorily completed before declaration of biology as a major. Material fee as indicated in *Schedule of Classes*. Factual and conceptual bases of modern biology, primarily at the cellular level. One hour discussion included.

0140. Plant Biology. (4,3). Cr. 5.

Prereq: BIO 0103. Must be satisfactorily completed before declaration of biology as a major. Material fee as indicated in *Schedule of Classes*. Continuation of Biology 0103, stressing special plant functions, the functional morphology of representatives of the plant kingdom, the bases of modern plant taxonomy. One hour of discussion included.

0141. Plant Biology for Non-Majors. Cr. 3.

Prereq: BIO 0103. Special plant functions, the functional morphology of representatives of the plant kingdom, the bases of modern plant taxonomy; demonstration-discussion sections illustrating selected lecture material.

0160. Animal Biology. (4,3). Cr. 5.

Prereq: BIO 0103. Must be satisfactorily completed before declaration of biology as a major. Material fee as indicated in *Schedule of Classes*. Morphology, functions, development, phylogeny, and ecological relationships of the principal animal types.

0161. Animal Biology for Non-Majors. Cr. 3.

Prereq: BIO 0103. Morphology, functions, development, phylogeny, and ecological relationships of the principal animal types and demonstration-discussion sections illustrating selected lecture material.

0187. Anatomy of Physiology. (4,6). Cr. 6.

Prereq: BIO 0103. Not for biology major credit. Material fee as indicated in *Schedule of Classes*. Systems, functions, organization of the mammal; emphasis on humans. Detailed study of skeletal and muscular systems and life functions; digestion, circulation, respiration, reproduction, growth.

0188. Human Anatomy and Physiology I. (3,4). Cr. 4.

Prereq: BIO 0103. Open only to College of Nursing students. Material fee as indicated in *Schedule of Classes*. Structures and functions of human body. Life processes, cells, tissues, skeletal, muscular and nervous systems of human organism.

0189. Human Anatomy and Physiology II. (3,4). Cr. 4.

Prereq: BIO 0188. Open only to College of Nursing students. Material fee as indicated in *Schedule of Classes*. Continuation of Biology 0188. Digestive, excretory, circulatory, endocrine, special sense systems of human organism.

0220. Introductory Microbiology. (3,4). Cr. 4.

Prereq: BIO 0103. Material fee as indicated in *Schedule of Classes*. Bacteria and their basic biology; the relationship of microorganisms to other living things including their role in disease; laboratory exercises paralleling the above principles.

0221. Introductory Microbiology for Non-Majors. Cr. 3.

Prereq: BIO 0103. Bacteria and their basic biology; the relationship of microorganisms to other living things including their role in disease; includes demonstration-discussion sections illustrating selected lecture material.

0240. Plants and Human Affairs. Cr. 3.

The role of plants in man's well-being and in the past development and present maintenance of his civilization.

0250. Cryptogamic Botany. (2,6). Cr. 4.

Prereq: BIO 0140. Morphology, taxonomy, and development of algae and bryophytes.

0251. Plant Morphology. (2,6). Cr. 4.

Prereq: BIO 0140. Anatomy and general morphology of tracheophytes.

0271. Comparative Vertebrate Zoology. (3,9). Cr. 6.

Prereq: BIO 0160. Material fee as indicated in *Schedule of Classes*. Morphological development of chordates. Dissection of vertebrate types to understand interrelations of adult structures in terms of inheritance, embryology, phylogeny.

0281. Trees and Shrubs. (2,2). Cr. 3.

Identification and distribution of local woody plants. Field trips. For students without formal training in botany.

0282. Local Flora. (2,2). Cr. 3.

Identification of native ferns and flowering plants in the Detroit area. Lecture, laboratory, field trips. For students without formal training in botany.

0287. Human Heredity. Cr. 3.

Basis of Mendelian genetics as applied to man. Statistical analysis of human populations; biochemical genetics in the studies of inborn errors of metabolism. Current areas of research in human genetics; eugenics — the problems of "genetic engineering."

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

0385. Animals in Human Living, Science and Research. Cr. 3.
Prereq: high school biology or BIO 0103 or consent of instructor. Introduction to animals as close associates of man; animals used as teaching models and subjects of research into human and other ills.

0390. Directed Study. Cr. 1-6 (Max. 6).
Prereq: written consent of adviser and instructor must be arranged during quarter preceding election of course. Primarily for biology majors who wish to continue in a field beyond that covered in regular courses. In every case the course must be carefully planned.

Undergraduate and Graduate Courses

0500. Radiobiology. Cr. 3.
Prereq: 24 credits in biology. Effects of radiation on living organisms; basic theoretical concepts, techniques and applications of radiation (isotopes, x-ray).

0501. Methods in Radiobiology. (0,15). Cr. 5.
Prereq. or coreq: BIO 0500, consent of instructor. Material fee as indicated in *Schedule of Classes*. Laboratory experiments with living animals and plants. Use of detectors and scalers. Radioautography, radiochromatography.

0502. Biological Literature. Cr. 3.
Prereq: 24 credits in biology. Types of biological literature; classifying, abstracting, editing. Preparation of research manuscripts; editorial policies of standard journals. Field trips to science libraries.

0503. History of Biology. Cr. 3.
Prereq: 24 credits in biology. Development of science and philosophy of biology from earliest written records to the present.

0504. Biometry. (3,2). Cr. 4.
Prereq: 16 credits in biology and a knowledge of algebra. Material fee as indicated in *Schedule of Classes*. Quantitative methods in biology. Statistical approach to data analysis and the design of experiments. Laboratory section permits actual analysis of selected statistical problems.

0505. Microtechnique. (2,9). Cr. 5.
Prereq: BIO 0251 or 0271 and CHM-0227. Material fee as indicated in *Schedule of Classes*. Light microscopy. Materials for structural and histochemical study.

0506. General Cytology. (3,6). Cr. 5.
Prereq: CHM 0210; 24 credits in biology; PHY 0215 recommended. Subcellular components, their structure, behavior, and function in generalized and differential cells as related to growth, reproduction, specialization, disease. Emphasis on results from light and electron microscopy and cytochemistry.

0507. Genetics. Cr. 5.
Prereq: BIO 0140, 0160, or 0220. Inheritance in plants and animals; experimental and statistical evidence from which natures of genetic mechanisms are deduced.

0508. Methods in Genetics. (1,9). Cr. 4 (Max. 12).
Prereq. or coreq: BIO 0507. Material fee as indicated in *Schedule of Classes*. Experimentation in genetics; classic Mendelian genetics; population genetics; molecular genetics. One topic offered each quarter to be announced in *Schedule of Classes*.

0509. Evolution. Cr. 4.
Prereq: BIO 0507. Evidence for organic evolution; the nature and consequences of the process.

0510. Limnology I: Lecture. Cr. 3.
Prereq: BIO 0140 and 0160; one course in chemistry or physics. Physical, chemical and biological properties of freshwater environments.

0511. Biogeography. Cr. 4.
Prereq: BIO 0140 and 0160. Introductory study of principles and patterns of plant and animal distribution.

0512. General Ecology Lecture. Cr. 3.
Prereq: 18 credits in biology; BIO 0555 recommended. Structure and distribution of plant and animal communities; environmental factors which influence them.

0513. Biological Fine Structure. Cr. 3.
Prereq: 24 credits in biology. An advanced study of cellular structure as revealed by the electron microscope and other means. Correlation between structure and function at the molecular level.

0514. Bioecology Laboratory. (0,6). Cr. 2.
Prereq. or coreq: BIO 0512; 18 credits in biology. Material fee as indicated in *Schedule of Classes*. Methods and techniques of field and laboratory work in bioecology.

0517. Systematic Biology. Cr. 3.
Prereq: BIO 0140 and 0160. History and philosophy of classification; kinds of data used to achieve a modern classification.

0518. Field Investigations in Biology. Cr. 1-6 (Max. 6).
Prereq: 18 credits in biology, consent of instructor. Field studies of one to eleven weeks, emphasizing biological principles and techniques demonstrated in the field.

0519. Principles of Natural Resource Management. (2,4). Cr. 3.
Prereq: BIO 0512 and consent of instructor. Principles, trends, and current methods used for managing and otherwise maintaining our natural resources.

0520. Limnology I: Laboratory. (0,8). Cr. 2.
Prereq. or coreq: BIO 0510 and consent of instructor. Laboratory and field methods in physical, chemical and biological limnology. Field introduction to diversity of freshwater habitats.

0523. Sanitary Bacteriology. (2,6). Cr. 4.
Prereq: BIO 0220 and CHM 0226. Material fee as indicated in *Schedule of Classes*. Microbiology of air, water, sewage; techniques for enumerating bacteria in water, sewage, milk; principles of disinfection. Field trips.

0525. Food Microbiology. (3,6). Cr. 5.
Prereq: BIO 0220. Material fee as indicated in *Schedule of Classes*. Techniques of characterizing the total microbial flora and individual groups of microbes in foods; sources and significance of microbes in foods; role in food spoilage; theories of food preservation; parameters of foods that affect the microbial flora; cause, prevention, control of food poisoning; thermal death time considerations in canning; physiology of thermophilic and psychrophilic growth.

0526. Pathogenic Bacteriology I. Cr. 3.
Prereq: BIO 0220 and CHM 0226. Introduction to characteristics of aerobic and anaerobic bacteria of the vertebrate host; emphasis on those concerned with endogenous infections; methods of isolation and cultivation mechanisms in pathogenesis.

0527. Pathogenic Bacteriology I: Laboratory. (0,6). Cr. 2.
Prereq. or coreq: BIO 0526. Laboratory experience in culturing and identifying the common bacterial pathogens of man.

0530. Aquatic Microbiology. (2,5). Cr. 3.
Prereq: 7 credits in microbiology or consent of instructor. Material fee as indicated in *Schedule of Classes*. Micro-organisms found in natural aquatic environments and their contribution to the functioning of aquatic ecosystems.

0531. Immunology. Cr. 3.
Prereq: BIO 0220 and CHM 0226. Antibody formation, antigen structure, antigen-antibody reactions.

0532. Serology. (1,6). Cr. 3.
Prereq: BIO 0220; prereq. or coreq: BIO 0531. Material fee as indicated in *Schedule of Classes*. Practice in various experimental methods used for stimulation of antibody production; *in vitro* titration of antibodies.

0543. Mycology. (2,6). Cr. 4.
Prereq: BIO 0140 and consent of instructor. Material fee as indicated in *Schedule of Classes*. Fundamentals of morphology, taxonomy, and physiology of fungi.

0545. Phycology. (3,3). Cr. 4.
Prereq: BIO 0140; one course in chemistry. Material fee as indicated in *Schedule of Classes*. Systematics, physiology, and ecology of the algae.

0546. Plant Physiology. (2,6). Cr. 4.
Prereq: BIO 0140; two courses in general chemistry or equiv. Material fee as indicated in *Schedule of Classes*. Physiology in relation to form in the intact plant; emphasis on growth and development, nutrition, water economy, plant-soil interactions, and translocation. Laboratory experiments demonstrating classical methodology and modern techniques employing tissue cultures and isotopic tracers to elucidate plant functions.

0550. Plant Development. (3,4). Cr. 4.
Prereq: BIO 0140, 0507 and consent of instructor. Material fee as indicated in *Schedule of Classes*. Control mechanisms in plant development, environmental and hormonal influences on germination, growth and differentiation, dormancy, and senescence.

0555. Systematic Botany. (2,6). Cr. 4.
Prereq: BIO 0140. Principles and methods of taxonomy and identification of native vascular plants.

0559. (PSL 0775) Physiology of Aging. Cr. 4.
Prereq: BIO 0566. The aging process with emphasis on humans followed by a discussion of cellular aging and theories regarding the process of aging.

0560. Invertebrate Zoology. (3,6). Cr. 5.
Prereq: BIO 0160. Material fee as indicated in *Schedule of Classes*. Comparative and functional morphology, embryology, physiology and evolution.

0561. Vertebrate Embryology. (3,6). Cr. 5.
Prereq: BIO 0271. Material fee as indicated in *Schedule of Classes*. Gametogenesis and fertilization; descriptive and analytical embryology of the sea urchin and amphibians; reproductive physiology and descriptive embryology of birds and mammals including man. Laboratory studies of sea urchin, frog and chick development.

0562. Developmental Biology. (3,6). Cr. 3.
Prereq: BIO 0507, 0561, 12 credits in chemistry. Organization of

germ cells and embryonic development; control of growth and development by genetic and other factors.

0563. Vertebrate Histology. (3,6). Cr. 5.
Prereq: BIO 0271. Material fee as indicated in *Schedule of Classes*. Characteristics and identification of normal mammalian tissues. Micro-anatomy of the mammal. Functional interpretation of micro-structure.

0564. Insect Natural History. (2,6). Cr. 4.
Prereq: BIO 0160. Behavior, life history, ecological and paleontological distribution and phylogeny of insects. Field trips.

0565. Natural History of Invertebrates. (2,6). Cr. 4.
Prereq: BIO 0140 and 0160; BIO 0560 recommended. Material fee as indicated in *Schedule of Classes*. Systematics, life histories, and ecology of invertebrate animals, exclusive of protozoa, parasitic worms, and insects. Field trips.

0566. Vertebrate Physiology. (3,6). Cr. 5.
Prereq: CHM 0104, BIO 0271. Material fee as indicated in *Schedule of Classes*. Introduction to physiology at the molecular, cellular and organ levels; organ systems of vertebrates; laboratory exercises demonstrating physiological phenomena of nerves, muscles, blood circulation, osmotic and ionic regulation, digestion, respiration and excretion.

0567. Endocrinology. Cr. 4.
Prereq: BIO 0561, 0566. Functional evolution of the chemoregulatory mechanisms in vertebrates, physiology and biochemistry of hormones with emphasis on interhormonal relationships in metabolism maintenance of homeostasis, growth, development. Endocrinopathies.

0568. Methods in Endocrinology. (0,15). Cr. 5.
Prereq: consent of instructor; prereq. or coreq: BIO 0567. Material fee as indicated in *Schedule of Classes*. Experiments demonstrating hormonal action *in vitro* and *in vivo*, utilizing surgery, hormone therapy, fluorometry, chromatography, ion exchange, and radioisotopes.

0569. Animal Behavior. Cr. 4.
Prereq: 24 credits in biology. Function, biological significance, causation, and evolution of species-typical behaviors which are a part of the animal's behavioral repertoire under natural conditions.

0570. Natural History of Vertebrates. (2,6). Cr. 4.
Prereq: BIO 0271. Material fee as indicated in *Schedule of Classes*. Life histories, survival and evolutionary strategies, laboratory and field identification, including study techniques of vertebrates; Michigan wildlife. Field trips.

0571. Paleontology of Vertebrates. (3,3). Cr. 4.
Prereq: BIO 0271. Material fee as indicated in *Schedule of Classes*. Morphology, phylogeny, evolution, paleoecology, and paleogeographic distribution of vertebrates. One field trip.

0572. Ornithology. (2,6). Cr. 4.
Prereq: BIO 0570. Material fee as indicated in *Schedule of Classes*. Morphology, systematics, ecology, evolution, physiology and behavior of birds.

0573. Mammalogy. (3,3). Cr. 4.
Prereq: BIO 0570. Material fee as indicated in *Schedule of Classes*. Systematics, geographical distribution, ecology, adaptive radiation, patterns of growth and reproduction, physiology. Field trips.

0574. Insect Systematics and Morphology. (2,6). Cr. 4.

Prereq: BIO 0160. Material fee as indicated in *Schedule of Classes*. The systematics, classification, and functional morphology of insects, together with methods of collection and study of insect specimens. Field trips.

0575. Ichthyology. (3,3). Cr. 4.

Prereq: BIO 0570. Systematics, geographic distribution, anatomy, ecology, population dynamics and environmental relations; field trips.

0576. General Protozoology. Cr. 3.

Prereq: BIO 0160; coreq: BIO 0679 recommended. Fine structure, nutrition, ecology, life history and phylogeny of the protozoa; protozoa especially useful in helping to resolve general biological questions.

0577. Parasitic Protozoa. (2,4). Cr. 3.

Prereq: BIO 0576 or 0578. Material fee as indicated in *Schedule of Classes*. Morphology, life cycles, taxonomy of parasitic protozoa emphasizing forms in both man and animals; specialized methods of culture diagnosis and control of parasitic protozoa.

0578. Biology of Parasitism. (3,9). Cr. 6.

Prereq: BIO 0160. Material fee as indicated in *Schedule of Classes*. Parasitism throughout the animal phyla. Morphology, life history, methods of transmission and control of parasites.

0579. Animal Behavior Laboratory. (0,9). Cr. 3.

Prereq. or coreq: BIO 0569; consent of instructor. Material fee as indicated in *Schedule of Classes*.

0581. Embryology. Cr. 3.

Prereq: BIO 0187 or 0189 or 0271. Open only to College of Nursing students. Gametogenesis and fertilization; descriptive and experimental embryology of echinoderms and amphibians; reproductive physiology and development of birds and mammals including humans.

0590. Honors Research in Biology. Cr. 4 (Max. 8).

Prereq: acceptance in Biology Honors Program. Open only to junior or senior biology majors. Consent of department Honors adviser and instructor must be arranged during quarter preceding election of the course. Research project.

0594. Senior Seminar for Bachelor of Science Programs. Cr. 1 (Max. 3).

Prereq: written consent of adviser. Not a requirement for the Bachelor of Science degree. Aspects of current biological research presented by well-known speakers.

0595. Senior Seminar: Honors Program. Cr. 1 (Max. 3).

Prereq: consent of adviser; completion of core courses and a minimum of 4 credits in BIO 0590. Open only to Honors students in biology.

0596. Senior Research for Bachelor of Science Programs. Cr. 2 (Max. 4).

Prereq: written consent of instructor and biology adviser. Not a requirement for the Bachelor of Science degree. Original research under direction of graduate staff.

0599. Terminal Essay: Honors Program. Cr. 3.

Prereq: consent of department and Honors advisers; senior standing and BIO 0590. Preparation of a terminal essay, satisfactory completion of which assures Honors graduation, providing performance in preceding Honors courses has been at Honors level.

0600. Cell Biology I: Lecture. Cr. 3.

Prereq: PHY 0214; BIO 0220, 0546 or 0566; CHM 0226 or consent of instructor. Integrated analysis of cells; their macromolecules, subcellular organization, energetics and regulation.

0601. Cell Biology I: Laboratory. (0,6). Cr. 2.

Prereq: PHY 0214; BIO 0220, 0546 or 0566; CHM 0226 or consent of instructor. Material fee as indicated in *Schedule of Classes*. Integrated analysis of cells, their macromolecules, subcellular organization, energetics and regulation.

0602. Biological Instrumentation. (2,0 or 6). Cr. 2 or 4.

Prereq: senior or graduate standing in biology. Material fee (for four credits) as indicated in *Schedule of Classes*. Theory and use of physico-chemical instruments in biological sciences.

0604. Methods in Microbial Genetics. (1,6). Cr. 3.

Prereq: BIO 0608 or 0708. Material fee as indicated in *Schedule of Classes*. Laboratory work will give instruction in the critical employment of basic techniques and methods in the investigation of genetics at the molecular and cellular levels. Use of those microorganisms such as fungi, bacteria and bacteriophages, which make them especially appropriate for the study of the fundamental hereditary mechanisms.

0605. Techniques in Electron Microscopy. (2,6). Cr. 4.

Prereq: BIO 0513 and written consent of instructor. Material fee as indicated in *Schedule of Classes*. Prepares students to use these techniques in present or future research; enables students to better evaluate the numerous publications which use these techniques.

0607. Human Genetics. Cr. 3.

Prereq: BIO 0507. Mechanisms of human inheritance in individuals, families, and populations. Statistical analyses of gene frequencies. Sampling methods and data procurement. Population predictions. Cytogenetics and biochemical determination of the phenotype.

0608. Genetics of Mikroorganisms. Cr. 3.

Prereq: BIO 0507. Principles and current progress in genetics at the molecular and cellular levels, emphasizing features of microorganisms appropriate for the study of the fundamental mechanisms concerning recombination, replication, metabolic functioning.

0609. Population Genetics. Cr. 4.

Prereq: BIO 0507 and MAT 0180 or equiv. The genetic structure of populations and relationship to organic evolution.

0610. Biosynthesis and Metabolism. Cr. 4.

Prereq: BIO 0140 and 0160; CHM 0224. Biosynthesis and metabolism of proteins, carbohydrates, lipids, steroids, amino acids and nucleic acids. The basic principles of enzyme kinetics in living systems.

0615. Limnology II. (3,4). Cr. 4.

Prereq: BIO 0510, 0520 and consent of instructor. Critical examination of current and classical theory and techniques of freshwater ecology. Contemporary experiments and comparative field investigation of selected habitats. Field trips.

0616. Introductory Biophysics. (3,3). Cr. 4.

Prereq: differential calculus, one year of chemistry or physics, one year of biology and consent of instructor. Material fee as indicated in *Schedule of Classes*. The physico-chemical bases of the molecular structure and function of cellular constituents.

0620. General Bacteriology. Cr. 4.

Prereq: BIO 0220 or consent of instructor; a course in organic

chemistry. General bacteriological phenomena with emphasis on ideas, mechanisms and fundamental principles.

0630. Pathogenic Bacteriology II. Cr. 3.

Prereq: BIO 0526 or consent of instructor. Advanced pathogenesis and growth requirements of disease-producing bacteria, with emphasis on fastidious species.

0631. Pathogenic Bacteriology II: Laboratory. (0,6). Cr. 2.

Prereq. or coreq: BIO 0526, 0630 or consent of instructor. Material fee as indicated in *Schedule of Classes*. Advanced pathogenesis and growth requirements of disease-producing bacteria, with emphasis on fastidious species. Designed for those who plan to work in clinical laboratories or conduct research involving pathogens.

0635. Microbial Ecology. Cr. 3.

Prereq: 12 credits in bacteriology. Ecologic relationships between microorganisms and higher forms in soils, the marine environment, the bovine rumen, insects, and in petroleum fields.

0645. Aquatic Plants. (3,3). Cr. 4.

Prereq: BIO 0510. Material fee as indicated in *Schedule of Classes*. The habitat, physiology and morphology of aquatic plants both in lecture and in laboratory-field sessions, with emphasis on vascular hydrophytes.

0661. Experimental Embryology. (1,6). Cr. 3.

Prereq: BIO 0561 and written consent of instructor. Material fee as indicated in *Schedule of Classes*. Control of developmental processes; structural and functional organization during embryogenesis as illustrated by experimental manipulations.

0662. Physiological Ecology. Cr. 3.

Prereq: BIO 0512, or consent of instructor. Physiological responses of individual organisms and populations to their environment; growth of individuals and populations, regulation of internal environment in poikilothermic and homoiothermic organisms, tropisms and taxes.

0663. Population Ecology. Cr. 3.

Prereq: BIO 0504, 0512 and consent of instructor. Advanced studies of factors affecting distribution and abundance of animal populations and communities; design and analysis of experimental data and models in ecology.

0665. Aquatic Insects. (2,6). Cr. 4.

Prereq: BIO 0565 or 0574 or consent of instructor. Functional morphology, systematics, life histories and ecology of aquatic insects. Field trips.

0666. Neurophysiology. Cr. 4.

Prereq: BIO 0566 and consent of instructor; prereq. or coreq: CHM 0662. Physiology and biophysics of neuronal control systems.

0667. Comparative Physiology. (3,0-6). Cr. 3 or 6.

Prereq: BIO 0566; organic chemistry recommended. Material fee (for 6 credit section) as indicated in *Schedule of Classes*. Function in the animal phyla; general principles of physiology; variety of physiological responses of animals to their environment. *In vivo* or *in vitro* experiments with vertebrates and invertebrates, involving muscle function, osmotic and ionic regulation, cardiovascular phenomena, thin-layer chromatography of steroids and physiological adjustment to temperature.

0676. Insect Biology III: Insects of Medical Importance. (2,6). Cr. 4.

Prereq: BIO 0675 or consent of instructor. Morphology, system-

atics, ecology and life history of arthropods which are vectors of disease or pests of man. Field trips.

0679. General Protozoology Laboratory. Cr. 3.

Prereq. or coreq: BIO 0576. Material fee as indicated in *Schedule of Classes*. Culture, staining, and cytological examination of the protozoa; taxonomy and phylogeny. Experimentation with protozoa as tools in biological research.

10680. Recent Advances in Biology I. Cr. 9.

Course runs from September to June. Credit only on satisfactory completion of entire ten-month course. Prereq: acceptance by Institute Director as specified by National Science Foundation. High school biology teachers in metropolitan Detroit area only.

10682. Recent Advances in Biology II. Cr. 9.

Course runs from September to June. Credit only on satisfactory completion of entire ten-month course. Prereq: BIO 0680; acceptance by Institute Director as specified by National Science Foundation. High school biology teachers in metropolitan Detroit area only.

10683. Recent Advances in Biology III. Cr. 9.

Course runs from September to June. Credit only on satisfactory completion of entire ten-month course. Prereq: BIO 0682; acceptance by Institute Director as specified by National Science Foundation. High school biology teachers in metropolitan Detroit area only.

0685. Human Physiology. Cr. 2.

Prereq: BIO 0566. Study of systems: circulatory, endocrine, digestive; application to human functions.

0700. Recent Advances in Molecular and Developmental Biology. Cr. 3 (Max. 9).

Prereq: consent of instructor. Formalized and in depth treatment of the current state of knowledge in a significant area of cell and molecular biology. Topics to be announced in *Schedule of Classes*.

0701. Cell Biology II: Lecture. Cr. 3.

Prereq: BIO 0600. Fundamental mechanisms which govern cell life, its origins, regulation, reproduction, differentiation and senescence.

0702. Molecular Virology. Cr. 3.

Prereq: BIO 0220 or equiv.; BIO 0507 and familiarity with biochemistry. A description of the structure and replication of the different types of viruses.

0703. Gene Structure and Function. Cr. 4.

Prereq: BIO 0507 and 0616 or CHM 0660, and consent of instructor. Detailed analysis of the synthesis, structure and function of genes in prokaryotes and eukaryotes.

0704. Methods of Microbial Genetics. (1,6). Cr. 3.

Prereq: BIO 0608 or 0708 and written consent of instructor. Material fee as indicated in *Schedule of Classes*. Critical employment of basic techniques and methods in investigation of genetics at the molecular and cellular levels. Use of those microorganisms, such as, fungi, bacteria and bacteriophages especially appropriate for study of fundamental hereditary mechanisms.

0705. Recent Advances in Environmental, Evolutionary and Systematic Biology. Cr. 3 (Max. 9).

Prereq: consent of instructor. Formalized and in depth treatment of the current state of knowledge in a significant area of environmental, evolutionary or systematic biology. Topics to be announced in *Schedule of Classes*.

0706. Advanced Electron Microscopy. (2,6). Cr. 4.

Prereq: BIO 0605, written consent of instructor. Material fee as indicated in *Schedule of Classes*. Continuation of Biology 0605. Handling, cleaning, and alignment procedures required to obtain optimum resolution and maximum efficiency while employing the electron microscope.

0707. Physiological Genetics. Cr. 3.

Prereq: BIO 0507. Physical and chemical properties of the genetic material; the fundamental mechanisms concerned with its replication, function, mutation, recombination and regulation; molecular basis of evolution.

0708. Genetics of Microorganisms. (3,3). Cr. 3.

Prereq: BIO 0507. No credit after Biology 0608. Principles and current progress in genetics at the molecular and cellular levels, emphasizing those features of microorganisms appropriate for the study of the fundamental mechanisms concerning recombination, replication, metabolic functioning. Three hours of field work.

0711. Regulation of Gene Activity. Cr. 3.

Prereq: BIO 0507, 0562 or consent of instructor. Evidence of differential gene activities and the molecular mechanisms involved in the control of gene activities during development; selected examples from plant and animal systems.

0713. Biological Fine Structure. (3,3). Cr. 3.

Prereq: 24 credits in biology. Cellular structure as revealed by the electron microscope and other means. Correlation between structure and function at the molecular level. Three hours of field work.

0714. Histogenesis. Cr. 3.

Prereq: BIO 0513, 0713, or 0563; and 0561. Formation of sub-cellular components leading to cell differentiation in plants and animals. Tissue formation as a result of cell movement, behavior and communication; specialized structure and function.

0715. Limnology II. (3,4). Cr. 4.

Prereq: BIO 0510, 0520 and consent of instructor. Material fee as indicated in *Schedule of Classes*. Critical examination of current and classical theory and techniques of freshwater ecology. Contemporary experiments and comparative field investigation of selected habitats. Field trips.

0716. Biophysics I. Cr. 3.

Prereq: BIO 0616 or equiv. Biophysical aspects of life; molecular biophysics, thermodynamics of macromolecules, excited states in biology, information transport, and molecular aspects of regulation.

0717. Recent Advances in Regulatory Biology and Biophysics. Cr. 3 (Max. 9).

Prereq: consent of instructor. Formalized and in depth treatment of the current state of knowledge in a significant area of regulatory biology or biophysics. Topics to be announced in *Schedule of Classes*.

0718. Biophysics II. Cr. 3.

Prereq: BIO 0716. Continuation of Biology 0716. Advanced treatment of excited states and information theory in biology.

0720. Physiology of Bacteria. Cr. 4.

Prereq: BIO 0620 and biochemistry. Cell structure, chemistry and function; mechanisms of biochemical changes during bacterial growth and metabolism.

0731. Comparative Immunology. Cr. 3.

Prereq: BIO 0507 and 0531, or consent of instructor. Genetical, developmental and ecological aspects of the immune response in microorganisms, plants and animals.

0736. Microbial Ecology Laboratory. (0,6). Cr. 2.

Prereq. or coreq: BIO 0635 or 0735. Material fee as indicated in *Schedule of Classes*. Isolation and quantitation of the microbial flora and fauna of soil and river water with emphasis on the propagation, taxonomy, and characteristics of the bacterial autotrophs with respect to their ecologic parameters. Isolation, propagation, and characterization of decomposers of recalcitrant molecules.

0743. Genetics and Development of Fungi. (2,0-4). Cr. 2 or 4.

Prereq: BIO 0507 or 0543. Material fee (for 4 credit section) as indicated in *Schedule of Classes*. Well known representatives in each major group of fungi. Laboratory work includes experiments on mutagenesis, complementation, heterokaryosis, tetrad analysis, and isolation of a few specific gene-determined end-products.

0746. Molecular Plant Physiology. Cr. 4.

Prereq: BIO 0546 or equiv. and consent of instructor; one course in organic chemistry. Autotrophic plants at the molecular level with emphasis on photosynthesis, nitrate and sulfate reduction, and the functions of other inorganic metabolites.

0747. Advanced Plant Physiology. (2,6). Cr. 4.

Prereq: BIO 0546 and one course in organic chemistry. Material fee as indicated in the *Schedule of Classes*. Growth and development of higher plants. Environmental influences and growth-controlling chemical factors.

0765. Neurophysiology. (4,3). Cr. 4.

Prereq: BIO 0566; prereq. or coreq: CHM 0662 and written consent of instructor. Physiology and biophysics of neuronal control systems. Three hours of field work.

0767. Comparative Physiology. (3,0-9). Cr. 3 or 6.

Prereq: BIO 0566. Material fee (for 6 credit section) as indicated in *Schedule of Classes*. Organic chemistry recommended. Function in the animal phyla to elucidate general principles of physiology, illustrate the great variety of physiological responses of animals to their environment. *In vivo* or *in vitro* experiments, with vertebrates and invertebrates, involving muscle function, osmotic and ionic regulation, cardiovascular phenomena, thin-layer chromatography of steroids and physiological adjustment to temperature.

0768. Endocrinology. (4,3). Cr. 4.

Prereq: BIO 0561 and 0566. Functional evolution of the chemoregulatory mechanisms in vertebrates. The physiology and biochemistry of hormones; interhormonal relationships in metabolic maintenance of homeostasis, growth, development; endocrinopathies. Three hours of field work.

0770. Animal Behavior Laboratory. (0,12). Cr. 3.

No credit after Biology 0579. Prereq: BIO 0569 or 0769. Environmental analysis in the laboratory, using live animals. Three hours of field work.

0796. Research Problems. Cr. 1-12 (Max. 12 for M.S. students, who may not elect more than 6 credits per quarter; max. 48 for Ph.D. students, who may take up to 12 credits per quarter).

Prereq: consent of adviser or instructor. Original investigation.

0890. Special Topics. Cr. 1-4 (Max. 8 for M.S.; max. 16 for Ph.D.)
 Prereq: consent of instructor. Various frontier aspects of biology such as advances in endocrinology. Work may take the form of lectures, laboratories or discussions. Topics to be announced in *Schedule of Classes*.

0895. Graduate Seminar in Biology. Cr. 1 (Max. 6).
 Prereq: graduate standing in biology. Graduate students are required to take two quarters; doctoral students may elect on a continuing basis. Presentations by graduate staff, advanced students, and visiting lecturers.

0899. Master's Thesis Research and Direction. Cr. 2-12 (12 required).
 Prereq: consent of instructor.

0999. Doctoral Dissertation Research and Direction.
 Credits to be arranged. Prereq: consent of doctoral adviser.

BLACK STUDIES

Office: 586 Student Center Building
 Director: Richard Simmons

CURRICULUM AND CO-MAJOR

The Center for Black Studies Co-Major Program is an undergraduate *interdisciplinary* course of study that leads to a bachelor's degree with co-major designation. A program of concentrated study within an area, the co-major is composed of two parts: the core requirements (24 credits) and the elective requirements (minimum of 24 credits). A student in the co-major program is expected to fulfill the designated core requirements and elect a minimum of 24 credits in elective courses from a select list. Core requirements and the electives of the Black Studies co-major may count towards satisfying a departmental major (usually a program of concentrated study in a department).

Transcript Notation — Fulfillment of the core requirements (24 credits) alone results in a transcript notation.

Admission — In order to apply for admission, a student must have met the entrance requirements of the University and the College of Liberal Arts. He must acquire at the beginning of his junior year a *Declaration of Major Form* on which he has authorized approval for his major at which time he may then apply for acceptance into the Center for Black Studies Co-Major Program.

Core Requirements

	<i>credits</i>
Black Studies 0390 (I D 0390) Black Studies I	4
Black Studies 0490 (I D 0490) Black Studies II	4
Black Studies 0590 (I D 0590) Black Studies III	4
English 0475 History and Development of Afro-American Literature	4
History 0314 The Black Experiment in America: 1619-1865	4
History 0315 The Black Experiment in America: 1865 to the present	4

COURSES OF INSTRUCTION (BKS)

0390. (I D 0390) Black Studies I. Cr. 4 (Max. 12).
 Interdisciplinary seminar to investigate the theory and practice of contemporary black social and political thought, with reference to black intellectual history.

0490. (I D 0490) Black Studies II. Cr. 4.
 Interdisciplinary seminar to explore the origins — in literature, music, the plastic arts — of black America.

0590. (I D 0590) Black Studies III. Cr. 4 (Max. 4).
 Interdisciplinary seminar with pre-professional focus on issues, policies, and concerns pertaining to blacks and the black struggle in different professions.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.



CHEMISTRY

Office: 277 Chemistry Building

Chairman: Norman A. LeBel

PROFESSORS

Robert D. Bach, †David F. Boltz, George H. Coleman (Emeritus), Darrell D. Ebbing, John F. Endicott, Karl H. Gayer, Milton D. Glick, Richard B. Hahn, Wilfried Heller (Emeritus), Joseph J. Jasper (Emeritus), Carl R. Johnson, Larry Kevan, Tokuji Kimura, Stanley Kirschner, Norman A. LeBel, Edward C. Lim, Richard L. Lintvedt, John P. Oliver, Wendell H. Powers, Morton Raban, Gene P. Reck, A. Edward Remick (Emeritus), David B. Rorabacher, George H. Schenk, Calvin L. Stevens, Tche T. Tchen, Dan Trivich

ASSOCIATE PROFESSORS

Robert K. Boeckman, Jr., W. Martin McClain, A. Paul Schaap

ASSISTANT PROFESSORS

Alan Brenner, Richard E. DeSimone, Lester S. Gorelic, William L. Hase, Dale H. Karweik, Lawrence J. Marnett, Ronald R. Schroeder

INSTRUCTOR

Gretchen O. Luros (Emeritus)

ADJUNCT PROFESSORS

Oliver H. Gaebler (lecturer), Erhard W. Rothe

DEGREE PROGRAMS

Bachelor of Arts — with a major in chemistry

Bachelor of Science in Chemistry

Master of Arts — with a major in chemistry

Master of Science — with a major in chemistry

Doctor of Philosophy — with a major in chemistry and specializations in analytical chemistry, biochemistry, inorganic chemistry, organic chemistry, and physical chemistry

The courses offered by the department are designed to serve the needs of three distinct groups of students: (a) those majoring in chemistry with the intention of entering the chemical profession, (b) those majoring in chemistry with the intention of entering other professional fields, and (c) those majoring in other subjects who desire to elect chemistry courses as part of their programs.

The sequence Chemistry 0107 (or 0105), 0108 and 0110 or its equivalent is prerequisite to all other courses in chemistry. All students intending to major in chemistry or other sciences, pre-medical and pre-dental students, pharmacy and engineering students, should elect Chemistry 0107 as their first chem-

† Deceased

istry course. In order to qualify for Chemistry 0107, the student must have completed one year of high school chemistry with laboratory and must pass qualifying examinations in high school chemistry. The qualifying examinations are given prior to and during each registration period.

Chemistry 0102, 0103, 0104 constitute a one-year terminal sequence for non-science majors. A year of high school algebra preceding Chemistry 0102 is strongly recommended.

Students having little or no background in high school science and who thus do not qualify for Chemistry 0107 may ultimately plan to elect advanced courses in chemistry. These students should enroll in Chemistry 0105. Having successfully completed Chemistry 0105 or its equivalent with a grade of C or better, they may then elect the following course sequence: Chemistry 0108, 0110.

BACHELOR OF ARTS

Major Requirements — Those who wish to follow the general curriculum in the College of Liberal Arts for the B.A. degree may fulfill the major requirements by completing a minimum of thirty-nine credits in chemistry exclusive of Chemistry 0107 and 0108. The courses must be distributed as follows:

	credits		credits
General Analytical 0110	4	Inorganic 0500	3
Quantitative Analytical 0412	4	Advanced Analytical:	
Organic 0224, 0226,		Instrumental I 0616	4
0227, 0228	14	Advanced Analytical:	
Physical Sequence 0540,		Instrumental II 0618	4
0541, 0542	8		

At least twelve credits each in college mathematics and physics are also required; Mathematics 0211, 0212, 0215 or equivalent; Physics 0217, 0218, 0219 are strongly recommended, however Physics 0213, 0214, 0215 are acceptable.

Additional courses in chemistry may be elected from the following: Chemistry 0229, 0543, 0560, 0601, 0602, 0605, 0612, 0614, 0623, 0624, 0628, 0641, 0642, 0643, 0644, 0660, 0661, 0662.

BACHELOR OF SCIENCE IN CHEMISTRY

Special Curriculum — This curriculum fulfills the requirements of the American Chemical Society Committee on Professional Training and is designed primarily for those planning to enter the chemical profession. Students may take a maximum of eighty-two credits in chemistry.

Curriculum and Major Requirements

1. The College Group Requirements in English, natural science (chemistry majors need only one course in the biological sciences), humanities, and social science must be met. The College Foreign Language Group Requirement as described in this bulletin must be met with the last course being German 0205 or its equivalent as certified by the undergraduate adviser.

2. Physics 0217, 0218, 0219.
3. Mathematics 0211, 0212, 0213, 0214, 0215, 0519. Additional courses in mathematics are strongly recommended.
4. Chemistry 0107 and 0108; 0110, 0224, 0226, 0227, 0228, 0229, 0412, 0500, 0540, 0541, 0542, 0543, 0544, 0601, 0602, 0616, 0618. In the junior year the student must enroll in Chemistry 0495. This course is a prerequisite for Chemistry 0496 (Chemical Research for Seniors). In the first two quarters of the senior year, the student must enroll for at least two credits each in Chemical Research for Seniors (Chemistry 0496), and must present an oral progress report to a Chemistry 0495 class. The student may elect to do work under the direction of any senior staff member of the Department of Chemistry. It is advised that the student consult with the faculty during the last quarter of the junior year in order to enable him to choose the field and staff member under whose direction this research will be carried out during the senior year. An additional six credits in advanced electives are required for the professional degree and must be chosen from the following: Chemistry 0605, 0612, 0614, 0623, 0624, 0628, 0641, 0642, 0643, 0644, 0660, 0661, 0662, 0664.

The student in the Bachelor of Science curriculum will take Chemistry 0107, 0108, and 0110 in his first year. Chemistry 0110 is prerequisite to all higher-numbered chemistry courses. The organic chemistry sequence of Chemistry 0224, 0226, 0227, 0228, and 0229 plus Analytical Chemistry 0412 are normally completed in the second year, as well as mathematics through 0212 and 0215. Chemistry 0540, 0541, 0542, 0543, and 0544 are normally completed in the third year.

General Requirements for Graduate Study

Every entering student regularly enrolled toward a graduate degree in chemistry will be required to take four entrance (proficiency) examinations. These will serve both as a guide to the student and his future adviser and as a means of demonstrating proficiency in the following fields of chemistry: analytical, inorganic, organic, and physical chemistry. These examinations will be given prior to the fall and spring quarters and each will be from two to three hours in length. They will be based on undergraduate chemistry only. A student entering in the winter or spring quarters must take these examinations in the spring or fall, respectively. Every graduate student who does not take or who fails a proficiency examination shall be required to complete both the proficiency course and examination in that area until he satisfies the requirements. Full-time students must satisfy this requirement within six consecutive quarters (including summers). Part-time students must satisfy this requirement by the time they complete eighteen quarter hours of graduate credit or six consecutive academic quarters, whichever is later. If the student has not demonstrated proficiency in the four fields of chemistry by the end of the prescribed period, he must terminate his studies as a graduate student in chemistry.

student passes one or more of the proficiency examinations he will be regarded as having achieved proficiency in one or more fields of chemistry. If a student fails one or more of the proficiency examinations, he may gain proficiency in these fields by earning a grade of at least B in the course listed for each

of the following areas: analytical chemistry (Chemistry 0610), inorganic chemistry (Chemistry 0600), organic chemistry (Chemistry 0620), and physical chemistry (Chemistry 0640) or by repeating and passing the proficiency examination in these fields. Students specializing in biochemistry may substitute Chemistry 0660 or Chemistry 0662 for either the analytical or inorganic chemistry proficiency requirements.

Proficiency courses cannot be used for a distributed minor and this proficiency requirement cannot be waived.

MASTER'S DEGREES

Master of Science

Plan A or Plan B— Plan B only if authorized by the Departmental Committee on Graduate Study.

Master of Arts

Plan C— If authorized by the Departmental Committee on Graduate Study.

Admission may be granted to applicants who have completed one year of college physics, mathematics through calculus, and the equivalent of undergraduate quarter credits in chemistry as follows: general chemistry (four), advanced chemistry (three), organic chemistry (eight), physical chemistry (eight), qualitative analysis (four), and quantitative analysis (four). Applicants specializing in biochemistry may substitute zoology for advanced chemistry.

Candidacy must be established by the time eighteen credits have been earned. The applicant must file a copy of the *Plan of Work* with the chairman of the Departmental Committee on Graduate Study.

Degree Requirements

Plan A— Thirty-three credits in course work. Chemistry 0676 is recommended as an elective. A minimum of twelve credits of laboratory research (Chemistry 0899) under the direction of a staff member in the department is required. The Departmental Committee on Graduate Study strongly recommends that those unable to follow Plan A petition for the M.A. degree under Plan C.

Plan B— Designed primarily for teachers. Forty-two credits in course work plus an essay are required. No laboratory research is required.

Plan C— Designed primarily for teachers. Forty-eight credits in course work are required. No research courses are required. The student must elect at least six courses open to graduate students in at least four of the following chemistry fields: analytical, biochemistry, inorganic, organic, and physical, for a total of at least twenty-four credits excluding research, seminar, and proficiency courses. At least one of the courses must involve laboratory work. The student must register for at least two seminar courses and for at least one credit in Chemistry 0885. At least eight credits of course work in chemistry must be in courses open only to graduate students.

A final oral examination covering course work and the thesis (if any) is required of all candidates.

DOCTOR OF PHILOSOPHY

All applications for admission to the doctoral program in chemistry and all adjustments in the program subsequent to admission must have the approval of the Departmental Committee on Graduate Study.

A minimum undergraduate honor point average of 3.0 in chemistry and cognate sciences is required except by special permission of the Departmental Committee on Graduate Study. An applicant having a lower average must earn the master's degree with a superior academic record before acceptance as a doctoral applicant. An applicant having a master's degree from another institution must show an honor point average of at least 3.0 (B).

In order to become a candidate for the Ph.D. degree, an applicant must successfully complete a qualifying examination. The qualifying examination is both written and oral; the written examination is given in the major division; the oral examination includes the major field and covers minor and cognate fields as well. Any additional requirements set by the Graduate Division or the department must be completed. Copies of such requirements must be obtained from the chairman of the Chemistry Department Graduate Studies Committee.

Degree Requirements

In addition to work in his major specialization, the student must elect a minor. This may be either a distributed minor in chemistry (completion of at least four courses for at least twelve credits in at least three divisions of chemistry other than his specialization), or a minor outside of the department (completion of at least twelve credits in an approved cognate field). The student must satisfy the foreign language proficiency requirements set by the Chemistry Department. The language requirement must be satisfied before the student can take the Qualifying Oral Examination. Alternative procedures are: (1) satisfactory completion at the undergraduate level of French 0260, German 0205 or Russian 0240, or equivalent (or at least eighteen credits, or equivalent; advanced placement for prior training is acceptable) with at least a "C" average in all courses taken in that language; or (2) satisfactory completion of a reading examination in French, German, or Russian as administered and graded by the appropriate language department; or (3) satisfactory performance on the Educational Testing Service Graduate School Foreign Language Test in French, German, or Russian. Satisfactory completion of a "Pre-Oral" examination based on the student's doctoral research is required prior to the final writing of his dissertation and at least six weeks before the final public lecture.

MINOR STUDY IN CHEMISTRY

Majors in other disciplines who elect chemistry as a minor should have completed general chemistry, analytical chemistry, and organic chemistry.

ASSISTANTSHIPS, FELLOWSHIPS

Graduate assistantships and fellowships are available for well-qualified students working toward the M.S. or Ph.D. degree. Requests for information should be addressed to the Fellowship Coordinator, Department of Chemistry.

BIOCHEMISTRY (SPECIAL INFORMATION)

The following Basic Medical Science courses are given by the School of Medicine.

- Biochemistry 0701. General Biochemistry Lecture.**
- Biochemistry 0702. General Biochemistry Laboratory.**
- Biochemistry 0703. General Biochemistry Lecture.**
- Biochemistry 0704. General Biochemistry Laboratory.**

A minimum grade of C is required in every prerequisite course.

Chemical and Metallurgical Engineering

The following courses are given by the College of Engineering.

- Metallurgical Engineering 0260. Structure and Properties of Metals.**
- Chemical Engineering 0535. Polymer Engineering I.**
- Chemical Engineering 0537. Polymer Engineering Laboratory.**
- Chemical Engineering 0635. Polymer Engineering II.**

COURSES OF INSTRUCTION¹ (CHM)

A minimum grade of C is required in every prerequisite course. Most laboratory courses have an assessment of \$10 as a non-returnable materials fee and are so indicated in Schedule of Classes. Breakage fees are returnable and withheld only to the extent of breakage in the class for which the fee was assessed. The parenthetical notation at the end of the course description indicates the most probable quarters in which the course will be offered. (Su=Summer, W=Winter, Sp=Spring, F=Fall)

0100. Physical Science: Chemistry (PHS 0192). Cr. 4.
For non-science majors. Chemical facts and theories; their consequences in history, politics, economics, education. (FW)

0101. Introduction to Chemistry. Cr. 5.
Matter and energy in chemistry, chemical symbols and equations, introduction to chemical bonding, acids and bases, solubilities and solutions; survey of organic chemistry; synthesis and reactions of biologically important organic compounds. (F)

0102. General Chemistry I. (4,3). Cr. 4.
Prereq: intermediate high school algebra recommended. Break fee \$10. High school chemistry not required. First course in terminal sequence Chemistry 0102, 0103, 0104. Matter and energy

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

in chemistry, chemical symbols and equations, structure and properties of atoms, introduction to chemical bonding, periodicity in chemistry. (FWSp)

0103. General Chemistry II. (4,3). Cr. 4.

Prereq: CHM 0102. Breakage fee \$10. Terminal course in inorganic chemistry. Preparation and properties of the chemical elements and their simple compounds, acids and bases, solubilities and solutions, introduction to chemical metallurgy. (WSp)

0104. General Chemistry III. (4,3). Cr. 4.

Prereq: CHM 0103. Breakage fee \$10. Terminal course in organic and biological chemistry. Synthesis and reactions of some of the most important organic compounds, survey of bio-chemistry with applications to nutrition, physiology and clinical chemistry. (SpSu)

The beginning chemistry sequence 0105 (or 0107), 0108 and 0110 is prerequisite for all other courses in chemistry.

0105. Introductory Principles of Chemistry. Cr. 6.

Prereq: intermediate high school algebra. Breakage fee \$10. No credit after CHM 0102. Principles of chemistry and their applications, atomic and molecular structure, states of matter, solutions, the chemical bond. (FWSpSu)

0107. Principles of Chemistry I. Cr. 4.

No credit after Chemistry 0103 or 0105. Prereq: completion of one year of high school chemistry including laboratory; high school algebra; satisfactory score on qualifying examination in high school chemistry. Principles of chemistry and their applications, atomic and molecular structure; the states of matter; solutions; the chemical bond. (FWSp)

0108. Principles of Chemistry II. (4,4). Cr. 5.

Prereq: CHM 0105 or 0107 or equiv. Breakage fee \$10. Continuation of Chemistry 0105 and 0107. Acids and bases; principles of chemical thermodynamics; equilibria; electrochemistry; kinetics. (FWSpSu)

0110. General Analytical Chemistry. (3,6). Cr. 4.

Prereq: CHM 0108 or equiv. Breakage fee \$10. General theory of solutions including thermodynamics and kinetics. Properties and reactions of inorganic substances. Introduction to quantitative chemistry. (FWSpSu)

0224. Organic Chemistry I. Cr. 4.

Prereq: CHM 0110 or equiv. The sequence Chemistry 0224, 0226, 0227, and 0228 meets requirements for premedical and pre dental students. Structure, stereochemistry and physical properties of all important classes of organic compounds. Reaction intermediates. Thermodynamics and kinetics of organic reactions. Introduction to organic spectroscopy. (FSp)

0226. Organic Chemistry II. Cr. 4.

Prereq: CHM 0224 or equiv. Continuation of Chemistry 0224. General reactions of aliphatic and aromatic compounds; emphasis on reaction mechanisms and one-step conversions. (WSu)

0227. Organic Chemistry Laboratory. (1,9). Cr. 3.

Prereq. or coreq: CHM 0226. Breakage fee \$10. Material fee \$10. Experiments to familiarize student with important laboratory techniques, with methods of identifying organic compounds, with reactions of typical members of important classes of aliphatic and aromatic compounds, with scope and limitations of organic syntheses. (WSpSu)

0228. Organic Chemistry III. Cr. 3.

Prereq: CHM 0226; prereq. or coreq: CHM 0227 or equiv. Required for chemistry majors and premedical students. Recommended for pharmacy and pre dental students. Continuation of Chemistry 0226. Heterocyclic compounds, polynuclear aromatic and aliphatic compounds, amino acids, proteins, carbohydrates; introduction to organic spectroscopy. (FSp)

0229. Organic Chemistry Laboratory. (1,7). Cr. 2.

Prereq: CHM 0227; prereq. or coreq: CHM 0228 or equiv. Required of students specializing in chemistry or pharmacy. Breakage fee \$10. Continuation of Chemistry 0227. Advanced synthetic procedures; techniques of vacuum distillation, anhydrous conditions. Experiments involving use of chromatographic techniques and analysis by spectro-photometric methods. (F)

0291. Research Problems in Chemistry. Cr. 2.

Prereq: CHM 0110 or equiv.; consent of departmental curriculum committee. Summer research projects under the direction of a senior faculty member.

0412. Quantitative Analytical Chemistry. (3,4). Cr. 4.

Prereq: CHM 0110 or equiv. or CHE 0280. Breakage fee \$10. Required of chemistry majors. Theory and practice in quantitative methods of analysis; statistics, selected equilibria and methods involving precipitation, neutralization, chelation, oxidation-reduction, and color-forming reactions. Chemical separations and potentiometric analysis. (Formerly Chemistry 0410 and 0411) (FSp)

0470. Frontiers in Chemistry. Cr. 1 (Max. 2).

Prereq: CHM 0495. Offered for S and U grades only. Fields of fundamental chemistry now under investigation and not yet in the literature. Different field at each presentation of course. Presented by invited specialists actively engaged in development of phase under consideration. (FSp)

0495. Junior Seminar for Chemistry Majors. Cr. 1.

Credit only on completion of Chemistry 0496. Prereq: CHM 0540, junior standing, and consent of instructor. Required of all students working toward a B.S. degree in chemistry. Research lectures (faculty, visiting scientists, and Chemistry 0496 participants). (FSp)

0496. Chemical Research for Seniors. Cr. 2-4 (Max. 12; min. 4, for chemistry majors).

Prereq: CHM 0495, 0544, and consent of instructor. Original investigation under the direction of a senior staff member. In addition to the research requirements the student must present an oral progress report to the Chemistry 0495 class. (FWSpSu)

0500. Intermediate Inorganic Chemistry. Cr. 3.

Prereq: CHM 0224 or equiv. or consent of instructor. Chemistry of the main group elements. (WSu)

0540. Physical Chemistry I. Cr. 3.

Prereq: CHM 0110, MAT 0212 and 0215. Required of chemistry majors. Chemistry 0540, 0542 and 0544 must be taken contiguously. Chemical thermodynamics and kinetic theory of gases. (FSp)

0541. Physical Chemistry Laboratory I. (1,6). Cr. 2.

Prereq: CHM 0412 (or former 0410 and 0411) and 0540, or equiv. Material fee \$10. Experiments involving thermodynamics, thermochemistry, kinetic theory and phase equilibria. (W)

0542. Physical Chemistry II. Cr. 3.

Prereq: CHM 0540 or equiv.; PHY 0213 or 0217; MAT 0213 recommended. Required of chemistry majors, Empirical kinetics,

quantum chemistry and electronic structure, and molecular spectroscopy-rotational, vibrational, electronic and magnetic. (WSu)

0543. Physical Chemistry Laboratory II. (1,6). Cr. 2.

Prereq: CHM 0541, 0542 and PHY 0214 or 0218. Material fee \$10. Experiments involving reaction kinetics, molecular spectroscopy, intermolecular forces, and surface properties. (FSp)

0544. Physical Chemistry III. Cr. 3.

Prereq: CHM 0542 or equiv. Required of B.S. majors; recommended for B.A. majors. Statistical thermodynamics, reaction rate theory, photo and radiation chemistry and structure of molecules and solids. (Sp)

0546. Physical Chemistry IV. Cr. 3.

Prereq: CHM 0542. Recommended for B.A. and B.S. majors. Applied aspects of physical chemistry stressing principles of polymer chemistry and catalysis.

0560. Survey of Biochemistry. Cr. 4.

Prereq: CHM 0104 and consent of instructor; or CHM 0224. (F)

Analytical Chemistry

0519. Quantitative and Instrumental Analysis. (3,3). Cr. 4.

No credit for chemistry majors; no credit if taken after CHM 0412. Prereq: CHM 0110 or equiv. Breakage fee \$10. Material fee \$10. Primarily for students in biology, premedicine, related health science and teachers of high school and college chemistry. Theory and practice of modern analytical chemistry with applications in the biomedical fields. (Formerly Chemistry 0619)

0610. Survey of Analytical Chemistry. Cr. 3.

Prereq: CHM 0412 or equiv. and consent of instructor. Primarily for graduate students not specializing in analytical chemistry. Comprehensive review of principles and methods. Chemical equilibria and stoichiometry. (Satisfies graduate proficiency requirement and analytical course requirement for M.S. degree. Does not satisfy analytical course requirement for distributed minor for Ph.D. degree.)

0612. Quantitative Organic Spectroscopy. (3,4 or 8). Cr. 4 or 5.

Prereq: CHM 0412 or equiv. Theory and application of absorption and emission spectroscopy to quantitative organic analysis. Unified consideration of UV absorption spectrophotometry, fluorescence emission spectrometry, and phosphorescence emission spectrometry. Electronic theory of charge transfer spectra. Use of IR and NMR for quantitative analysis. Functional group analysis wet methods and integration with spectroscopic methods.

0614. Advanced Analytical Chemistry: Inorganic. (3,4 or 8). Cr. 4 or 5.

Prereq: CHM 0412. Physical chemical concepts applied to inorganic analysis. Multiple equilibria as applied to masking, separations, and selectivity in acid-base, complexometric, and redox reactions. Analytical chemistry of the elements by groups with discussion of representative elements. Laboratory work on analysis of alloys, minerals, and commercial products.

0616. Advanced Analytical Chemistry: Instrumental Analysis I. Cr. 4.

Prereq: CHM 0412. Breakage fee \$10. Required of all B.A. and B.S. majors. Theory and practice of instrumental methods of analysis including electro-chemical methods, magnetic spectroscopy and mass spectroscopy. Introduction to instrumentation including design and function of common laboratory instruments.

0618. Advanced Analytical Chemistry: Instrumental Analysis II. Cr. 4.

Prereq: CHM 0616. Breakage fee \$10. Required of all B.A. and B.S. majors. Theory and applications of various spectrographic and spectrophotometric methods, atomic absorption, thermal analysis, and gas and liquid chromatography.

0810. Theory of Analytical Chemistry. Cr. 3.

Prereq: CHM 0610 or equiv. Application of physicochemical principles to titrimetric and gravimetric methods of analysis. Acid-base equilibria in nonaqueous solutions, statistical treatment of analytical data, theory of sampling, complex equilibria and analytical use of complexation reactions, thermodynamic considerations in redox equilibria, graphic representation of equilibrium data, multi-stage separation methods.

0812. Electroanalytical Chemistry. (3,0 or 4). Cr. 3-4.

Prereq: CHM 0610 or equiv. The theory and practice of modern voltametric methods as applied in analytical and kinetic studies.

0814. Radiochemistry. (3,4). Cr. 4.

Prereq: CHM 0544 or equiv. Properties and safe handling of radioactive substances. Experiments dealing with identification and use of various radioactive isotopes and application of tracer techniques.

0816. Analytical Absorption Spectrometry. (1,4). Cr. 2.

Prereq: CHM 0610 or equiv. Principles of spectrophotometry and application of absorption spectra of ultraviolet, visible, and infrared regions to problems in analytical chemistry. Theory and practice of atomic absorption spectrometry. Color specification, attenuated total reflectance, differential spectrophotometry.

0817. Special Topics in Analytical Chemistry. Cr. 2-4 (Max. 9, M.S.; max. 18, Ph.D.).

Prereq: CHM 0610 or equiv. Topics in different quarters include: analytical instrumentation, analytical emission spectrometry, analytical separations, complexometric titrations, kinetics and mechanisms of reactions.

0880. Seminar in Analytical Chemistry. Cr. 1 (Max. 6, M.S.; max. 9, Ph.D.).

Prereq: consent of adviser. Required of all majors in analytical chemistry. Weekly meeting of departmental staff, invited guests, and qualified students to study recent developments. Each seminar member presents papers and enters into the discussion that follows.

Organic Chemistry

0620. Intermediate Organic Chemistry. Cr. 3.

Prereq: CHM 0228 and 0540 or equiv. and consent of instructor. Satisfies graduate proficiency requirement; does not satisfy B.S. chemistry elective requirement, nor Ph.D. distributed minor organic course requirement. Comprehensive review of principles, molecular structure, reaction mechanisms and synthetic utility.

0621. Organic Preparations. Cr. 2-4.

Prereq: CHM 0229 or equiv. Preparation of a number of organic compounds. Procedures selected from original literature to acquaint student with techniques of preparative organic chemistry and to develop skill in manipulation. In addition to more common operations, students are expected to become proficient in high efficiency fractionation, vacuum distillation, molecular distillations, reactions in inert atmospheres. Insofar as practical, preparations assigned to correspond with student's interests.

0623. Organic Spectral Identification. Cr. 3.

Prereq: CHM 0228 or equiv. Application of IR, UV, NMR, and mass spectral methods to the identification of organic compounds. Recommended for students intending to do graduate work or industrial work in organic chemistry.

0624. Organic Qualitative Analysis Laboratory. (0,8). Cr. 2.

Prereq: CHM 0623. Separation and identification of organic compounds. Spectroscopic methods will be coupled with systematic chemical approaches. The laboratory component of Chemistry 0623, this course is recommended for students intending to do graduate work or industrial work in organic chemistry.

0626. Bio-Organic Chemistry for Teachers. Cr. 3.

Prereq: consent of instructor. Open only to in-service teachers of high school and college chemistry. Organic reactions and reaction mechanisms, modern techniques of structure determination, stereochemistry; intermediary metabolism, mechanism of action enzymes, protein synthesis, synthesis of RNA and DNA.

0628. Advanced Organic Chemistry. Cr. 3.

No credit for graduate chemistry majors. Prereq: CHM 0228 and 0540 or equiv. and consent of instructor. Mechanisms of specific classes of reactions; reaction intermediates; development of criteria for establishing reaction mechanisms; structure-reactivity correlations.

0720. Advanced Organic Chemistry I. Cr. 3.

Prereq: CHM 0228 and 0540 or equiv., or acceptable performance on organic proficiency exam and consent of instructor. Mechanisms of specific classes of reactions; reaction intermediates; development of criteria for establishing reaction mechanisms; structure-reactivity correlations.

0721. Organic Spectral Identification. Cr. 3.

Prereq: CHM 0228 or equiv. Application of IR, UV, NMR and mass spectral methods to the identification of organic compounds.

0821. Advanced Organic Chemistry II. Cr. 3.

Prereq: CHM 0720 or equiv. and consent of instructor. Structure and stereochemistry of organic molecules and correlations between structure and chemical and physical properties.

0822. Organic Reactions. Cr. 3.

Prereq: CHM 0821 or equiv. Alkylation reactions, active methylene compounds, aldol and related condensations such as Perkin, Mannich, Michael, chloromethylation; Grignard reactions, synthesis of acid derivatives. Working knowledge of scope and limitations of important synthetic methods of organic chemistry.

0826. Advanced Physical-Organic Chemistry. Cr. 3.

Prereq: CHM 0821 or equiv. Atomic and molecular properties and experimental techniques for study of reaction mechanisms and molecular structure. Kinetics of organic reactions.

0828. Chemistry of Steroids and Terpenes. Cr. 3.

Prereq: CHM 0821 or equiv. Structure proof, stereochemistry, reactions and synthesis of representative classes of steroids and terpenes. Conformational analysis and mechanistic interpretations of reactions as well as structural correlations through biogenetic relationships. Recent developments.

0830. Special Topics in Organic Chemistry. Cr. 3 (Max. 9, M.S.; max. 18, Ph.D.).

Prereq: consent of instructor. Recent developments in organic chemistry; modern interpretations. Topics in different quarters include alkaloids, carbohydrates, proteins, free radical chemistry.

0881. Seminar in Organic Chemistry. Cr. 1 (Max. 6, M.S.; max. 9, Ph.D.).

Prereq: consent of adviser. Required of all graduate students in organic chemistry. Weekly meetings of members of the departmental staff, invited guests and qualified students to study recent developments. Each seminar member presents papers and enters into discussions that follow.

Inorganic Chemistry

0600. Intermediate Inorganic Chemistry I. Cr. 3.

Prereq: CHM 0540 or equiv. Open only to graduate students in chemistry. Fundamental principles of theoretical inorganic chemistry emphasizing chemical bonding, and periodic classification of elements. (Satisfies graduate proficiency course requirements; does not satisfy distribution requirements for Ph.D. degree.)

0601. Inorganic Chemistry Laboratory. (1,5). Cr. 2.

Prereq. or coreq: CHM 0602 or equiv. Breakage fee \$10. Material fee \$10. Preparation of inorganic compounds; important synthetic procedures; elements of fabrication of chemical glassware; vacuum techniques; temperature measurement and control; fractional crystallization, distillation, sublimation; pressure measurement; manipulations requiring exclusion of the atmosphere; reactions in non-aqueous solvents.

0602. Intermediate Inorganic Chemistry II. Cr. 3.

Prereq: CHM 0224 and 0500 or equiv. Chemistry of the transition metal elements; elementary coordination chemistry.

0605. Structure and Bonding in Inorganic Systems. Cr. 3.

Prereq: CHM 0602 or equiv. or consent of instructor. Modern theories, molecular symmetry and application of group theory.

0609. Inorganic Chemistry for Teachers. Cr. 3.

Credit towards graduate degree only on consent of chairman. Prereq: consent of instructor. Open only to in-service teachers of high school or college chemistry. Modern concepts and their applications.

0801. Survey of Modern Inorganic Chemistry. Cr. 3.

Prereq: CHM 0602 or consent of instructor. Theories and interpretations of periodicity, chemical bonding, inorganic stereochemistry, acid-base reactions and coordination chemistry.

0802. Structure and Spectroscopy in Inorganic Systems. Cr. 3 (Max. 9).

Prereq: CHM 0801 or consent of instructor. Modern concepts of molecular and electronic structure as elucidated by spectral and magnetic measurements. Ligand field theory, inorganic stereochemistry, magnetochemistry, specialized spectral methods.

0803. Inorganic Kinetics and Reaction Mechanisms. Cr. 3 (Max. 9).

Prereq: CHM 0801 or consent of instructor. Variable topics: reaction mechanisms of coordination complexes; catalytic reactions; inorganic photochemistry.

0804. Advanced Inorganic Syntheses and Reactions. Cr. 3 (Max. 9, M.S.; max. 18, Ph.D.).

Prereq: CHM 0801 or consent of instructor. Variable topics: organometallic chemistry; transition metal compounds; non-aqueous solvent systems, bioinorganic chemistry, hydrides.

0882. Seminar in Inorganic Chemistry. Cr. 1 (Max. 6, M.S.; max. 9, Ph.D.).

Prereq: consent of adviser. Required of all graduate students in

inorganic chemistry. Weekly meetings of departmental staff and qualified students to study recent developments. Each seminar member presents assigned papers and enters into discussions.

Physical Chemistry

0640. Intermediate Physical Chemistry. Cr. 3.

Prereq: consent of instructor. Satisfies graduate proficiency course requirement; does not satisfy physical course requirement of distributed minor for Ph.D. degree nor distribution requirement for M.A. degree. Problem-oriented course covering the fundamentals of thermodynamics, chemical kinetics, chemical bonding and molecular energy levels.

0641. Advanced Physical Chemistry I. Cr. 3.

Prereq: CHM 0544 or equiv. Theoretical and experimental description of atomic and molecular structure, fundamentals of quantum chemistry, and statistical thermodynamics.

0642. Advanced Physical Chemistry II. Cr. 3.

Prereq: CHM 0641 or equiv. Continuation of CHM 0641. Molecular energy levels in complex molecules, application of magnetic and optical spectroscopy for the experimental determination of molecular energy levels.

0643. Advanced Physical Chemistry III. Cr. 3.

Prereq: CHM 0642 or equiv. Theoretical and experimental principles of chemical kinetics including the kinetics of highly energetic molecules, fast reactions, and the use of non-Boltzmann experimental methods.

0644. Application of Computers in Chemistry. Cr. 3.

Prereq: CHM 0544 or equiv. Basic principles of computer programming and application to chemical problems. Cannot be used as the only physical chemistry course for a distributed minor or for distribution requirements for the M.A. degree.

0656. Physical Chemistry for High School Teachers. Cr. 3.

Prereq: consent of instructor (calculus not required). Restricted to teachers of high school chemistry. Atomic and molecular structure; thermodynamics and chemical equilibrium; reaction kinetics.

0741. Thermodynamics. Cr. 3.

Prereq: CHM 0544 or equiv. A first course in thermodynamics covering the three laws and their application to chemistry; includes an introduction to statistical thermodynamics.

0743. Chemical Kinetics. Cr. 3.

Prereq: CHM 0544 or equiv. Theoretical and experimental principles of chemical kinetics including the kinetics of highly energetic molecules, fast reactions, and the use of non-Boltzmann experimental methods.

0753. Statistical Thermodynamics. Cr. 3.

Prereq: CHM 0741. Application of statistical methods to determination of thermodynamic properties of chemical systems from a knowledge of molecular properties.

0757. Advanced Quantum Chemistry. Cr. 3.

Prereq: CHM 0642. Topics in quantum chemistry including approximate methods of solution of Schrodinger's equation, modern molecular orbital theories of molecular structure, calculation and use of potential energy surfaces.

0845. Chemistry of the Solid State. Cr. 3.

Prereq: CHM 0544 or equiv. Chemical properties of solids; struc-

ture of crystals, imperfections, crystal growth, reactions in and on solids, properties of metals, semiconductors.

0859. Special Topics in Physical Chemistry. Cr. 3

(Max. 9 M.S.; max. 18, Ph.D.).

Prereq: consent of instructor. Topics under recent investigation and of current interest such as: molecular spectroscopy, electron spin resonance, lasers, molecular dynamics, molecular quantum mechanics, crystallographic structure methods.

0865. Biophysical Chemistry. Cr. 3.

Prereq: CHM 0544 and 0660, or equiv. Physical chemistry of biologically important substances; emphasis on proteins including modern technique.

0883. Seminar in Physical Chemistry. Cr. I (Max. 6, M.S.;

max. 9, Ph.D.).

Prereq: consent of adviser. Required of physical chemistry graduate students. Weekly meetings of departmental staff and qualified students to study recent developments. Each seminar member presents assigned papers and enters into discussions that follow.

Biochemistry

0660. Biochemistry I. Cr. 3.

Prereq: CHM 0226, 0412, BIO 0103. CHM 0660, 0662 and 0664 taught as integrated courses. Enzymatic breakdown of foodstuff, synthesis of body constituents, mechanisms of action of vitamins and hormones, and other chemical processes in biological systems.

0661. Biochemistry Laboratory. (0,6). Cr. 2.

Prereq: CHM 0662; written consent of adviser and instructor. Correlated with lecture material in Chemistry 0660 and supplemented with discussions and demonstrations.

0662. Biochemistry II. Cr. 3.

Prereq: CHM 0660 or equiv. Continuation of Chemistry 0660.

0663. Biochemistry Laboratory. (0,6). Cr. 2.

Prereq: CHM 0661; prereq. or coreq: CHM 0662. Correlated with lecture material in Chemistry 0662 and supplemented with discussions and demonstrations.

0664. Biochemistry III. Cr. 3.

Prereq: CHM 0662 or equiv. Continuation of Chemistry 0662.

0666. Biochemistry for Teachers. Cr. 3.

Prereq: consent of instructor. Restricted to in-service teachers of high school and college chemistry. Intermediary metabolism; mechanism of action of enzymes; protein synthesis; synthesis of RNA and DNA.

0860. Hormone Chemistry I. Cr. 2.

Prereq: CHM 0620 or 0660. Pituitary and thyroid hormones; emphasis on their chemical nature, biochemical effects in humans.

0862. Hormone Chemistry II. Cr. 2.

Prereq: CHM 0620 or 0660. Estrogen, androgen, adrenal cortex hormones. Chemistry and biological effects in humans.

0864. Hormone Chemistry III. Cr. 2.

Prereq: CHM 0620 or 0660. Chemistry, physiological and pathological aspects of insulin, catecholamines and parathormone; emphasis on humans. Attention to renal hemodynamics.

0867. Special Topics in Biochemistry. (3,2). Cr. 3-5
(Max. 9, M.A. or M.S.; max. 18, Ph.D.).

Prereq: CHM 0662 or equiv. Recent developments. Topics to be announced in *Schedule of Classes*.

0884. Seminar in Biochemistry. Cr. 1 (Max 6, M.S.; max. 9, Ph.D.).

Prereq: consent of adviser. Required of all graduate students in biochemistry. Weekly meetings of members of the departmental staff, invited guests and qualified students to study recent developments. Each seminar member presents papers and enters into discussions that follow.

History, Research, Applied Chemistry, and Special Courses

0676. Chemical Literature. Cr. 2.

Prereq: CHM 0544 and 0620, or equiv.; reading knowledge of German. Intended to give facility in location of information of chemical nature. Biographies, encyclopedias, abstract journals, reviews, monographs, dictionaries; inorganic, organic, physical, analytical, and biochemical literature.

0690. Directed Study. Cr. 1-4 (Max. 12).

Undergrad. prereq: consent of adviser; grad. prereq: consent of adviser and graduate officer.

0790. Directed Study. Cr. 1-4 (Max. 16).

Prereq: consent of adviser and graduate officer.

0799. Master's Essay Direction. Cr. 3-4.

Prereq: consent of adviser and chairman.

0870. Research in Chemistry. Cr. 1-16 (Max. 45).

Prereq: consent of adviser.

0885. Frontiers in Chemistry. Cr. 1 (Max. 8).

Prereq: consent of instructor. Offered for S and U grades only. Fields of fundamental chemistry now under investigation and not yet in the literature. Different field each time course is presented. Phases presented by invited specialists actively engaged in development of phase under consideration.

0899. Master's Thesis Research and Direction. Cr. 2-12 (12 required).

Prereq: consent of adviser.

0999. Doctoral Dissertation Research and Direction.

Credits to be arranged. Prereq: consent of doctoral adviser.

CHICANO-BORICUA STUDIES

Office: Room 13, 631 Merrick

ASSISTANT PROFESSORS

Jaime E. de la Isla (Coordinator), Isabel Sales, Ciro H. Sepulveda

Chicano-Boricua Studies is the first educational program in the United States whereby two distinct groups of Latino origins have been established together in a common setting at an institution of higher learning. This unique, innovative program, formerly at Monteith College, is designed to serve the educational interests of various groups of undergraduate students: (1) incoming Latino freshmen admitted to the College of Liberal Arts through special arrangements with the Office of Admissions; (2) all students wishing to increase their awareness and knowledge of the socio-historical experience of Mexican American (Chicano) and Puerto Rican (Boricua) communities in the United States; (3) all students preparing for a minor in bilingual education in the College of Education; and (4) co-major students complementing their academic fields of study or pre-professional programs.

CURRICULUM AND CO-MAJOR

The Chicano-Boricua Studies Co-Major Program in the College of Liberal Arts is an undergraduate, multidisciplinary course of study that leads to a Bachelor's degree with co-major designation. Students admitted to this co-major program must complete the designated core requirements and elect a minimum of twenty-four credits among all elective courses. (NOTE: No more than sixteen credits of CBS courses may be elected from the elective courses listed below.) Several courses in the co-major program may satisfy departmental major requirements. The College of Liberal Arts honors the following Chicano-Boricua Studies (CBS) courses among its group distribution requirements: Social Science—CBS 0201, 0241, 0242, 0243, 0311, 0312; Humanities—CBS 0210, 0211.

For further information, students are encouraged to consult an adviser in the Chicano-Boricua Studies Co-Major Program.

Transcript Notation—All students who have fulfilled the course requirements of the co-major program will receive this notation on their transcript.

Admission—Students may apply for acceptance to the Chicano-Boricua Studies Co-Major Program by submitting a *Declaration of Major Form* for approval at the beginning of their junior year.

Required Core Courses (24 credits)

	<i>credits</i>
CBS 0201.....Introduction to Chicano-Boricua Studies	4
CBS 0210.....Chicano Literature and Culture	4
CBS 0211.....Puerto Rican Literature and Culture	4
CBS 0241.....History of Mexico	4
CBS 0242.....History of Puerto Rico	4
CBS 0243.....Contemporary History of Latinos in the U.S.	4

Elective Courses (24 credits)

CBS 0310	Latinos in Education	4
CBS 0311	Urbanization and the Latino	4
CBS 0312	Politics in the Latino Community	4
CBS 0361	Seminar in Latino Urban Problems I	4
CBS 0362	Seminar in Latino Urban Problems II	4
CBS 0363	Seminar in Latino Urban Problems III	4
GEG 0270	Geography of Latin America	4
PS 0509	Government and Politics in Latin America	4
HIS 0525	Latin America to 1810	4
HIS 0526	Latin America since 1810	4
SPA 0641	Chicano, Cuban and Puerto Rican Spanish	4
ANT 0651	Meso-America Pre-History	4

COURSES OF INSTRUCTION¹ (CBS)

0141. Chicano-Boricua Practicum. Cr. 1 (Max. 3).

Prereq: consent of instructor. Open only to students in Chicano-Boricua Program. Undergraduate basic academic skills coordinated with the reading efficiency and study skills center on campus. (Formerly Monteith 0141)

0201. Introduction to Chicano-Boricua Studies. Cr. 4.

Survey of the social, economic and political experiences of Chicano and Puerto Rican communities in the United States.

0210. Chicano Literature and Culture. Cr. 4.

Major themes and figures of the Chicano cultural experience as represented in the literature and other humanities.

0211. Puerto Rican Literature and Culture. Cr. 4.

Major themes and figures of the Puerto Rican cultural experiences in the United States as represented in the literature and other humanities.

0241. History of Mexico. Cr. 4.

Historical developments of Mexico including the pre-Columbian, colonial, national, revolutionary and contemporary periods; introduction of the historical backgrounds of Chicanos in the American southwest. (Formerly Monteith 0241)

0242. History of Puerto Rico. Cr. 4.

Historical development of Puerto Rico and the Puerto Rican people from the pre-Columbian period to the present. (Formerly Monteith 0242)

0243. Contemporary History of Latinos in the United States. Cr. 4.

Prereq: CBS 0241 or 0242 or consent of instructor. Historical evolution of Spanish-speaking in American society; cultural conflict and the quest for self-identity and social-economic justice. (Formerly Monteith 0243)

0310. Latinos in Education. Cr. 4.

Prereq: CBS 0201 or consent of instructor. Social, cultural and professional issues encountered by the Spanish-speaking population in the United States in pursuit of a public school education and opportunities in higher education. (Formerly Monteith 0251)

0311. Urbanization and the Latino. Cr. 4.

Prereq: CBS 0201 or consent of instructor. Migration of Latinos to the United States and their labor and urbanization experiences. (Formerly Monteith 0252)

0312. Politics and the Latino Community. Cr. 4.

Prereq: CBS 0201 or consent of instructor. Political participation of the Spanish-speaking from 1848 to the present; critical evaluation of political ideologies and issues; survey of social, cultural and political organizations within this community. (Formerly Monteith 0253)

0361. Seminar in Latino Urban Problems I. Cr. 4-8.

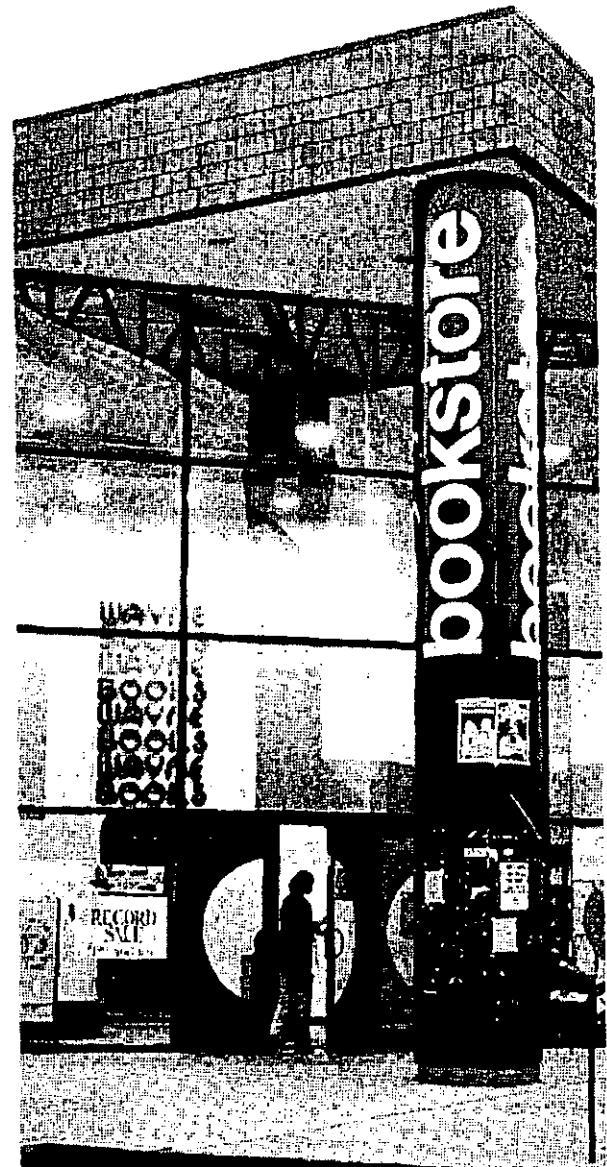
Prereq: consent of instructor. Selected topics investigating contemporary urban problems affecting the Spanish-speaking population with emphasis on Detroit area; conducting of research and field work activities. (Formerly Monteith 0361)

0362. Seminar in Latino Urban Problems II. Cr. 4-8.

Prereq: CBS 0361 or consent of instructor. Continuation of Chicano-Boricua Studies 0361. (Formerly Monteith 0362)

0363. Seminar in Latino Urban Problems III. Cr. 4-8.

Prereq: CBS 0361, 0362 or consent of instructor. Continuation of sequence. (Formerly Monteith 0363)



¹ See page 661 for interpretation of numbering system, signs and abbreviations.

COMPARATIVE LITERATURE

Office: English Department, 431 State Hall

Director: Alfred Schwarz

Staff: selected from the Departments of English, Greek and Latin, Humanities, Near Eastern Languages, Romance and Germanic Languages, and Slavic Languages.

MASTER OF ARTS IN COMPARATIVE LITERATURE

Plan B — Forty-four credits in course work plus an essay.

Admission — All applicants must meet the general standards for admission to graduate study as determined by the University and stated elsewhere in this bulletin. In addition, the student should have a reasonable command of two languages and literatures, one of which may be English.

Candidacy must be established by the time sixteen credits have been earned.

Degree Requirements — The student is required to study bibliography and methods of research, to take a two-quarter seminar in literary theory and the comparative study of literature, to take course work in two literatures, and to take a course in problems of translation. Each student completes his program by writing a master's essay.

Courses of Instruction — Courses are drawn from the above named departments. Individual programs will be designed by the student and his adviser.

COMPUTER SCIENCE SECTION

of the Department of Mathematics

Office: 646 Mackenzie Hall

Coordinator, Computer Science Section: Seymour J. Wolfson

Chairman, Department of Mathematics: Bertram J. Eisenstadt

PROFESSORS

Francis P. Mathur, Franklin H. Westervelt

ASSOCIATE PROFESSORS

Charles F. Briggs, William Grosky, Seymour J. Wolfson

ASSISTANT PROFESSORS

Krishna K. Argarwal, Daniel R. Frantz, Stephen P. Hepler, Ronald J. Srodawa, Sargur Srihari, Nai-Kuan Tsao

ADJUNCT ASSISTANT PROFESSOR

Robert E. Monroe, Associate Director, Computer and Data Processing Center

DEGREE PROGRAMS

Bachelor of Arts — with a major in computer science

Bachelor of Science — with a second major in computer science

Bachelor of Science in Computer Science

Master of Arts — with a major in computer science

Master of Science — with a major in computer science

Computer science is a new and rapidly growing field of knowledge which already has had a profound effect on human society. The Computer Science Section, which is organized as a separate division of the Department of Mathematics, teaches the principles and use of computing and information processing systems, conducts research and exploration into the potentials of such systems, and assists the university community in dealing with the ever-increasing impact of modern computing technology on almost every field of endeavor.

Degree programs have been established at both the undergraduate and graduate master's levels for those seeking concentrated study in the field of computer science. In addition, on the undergraduate and graduate level the Computer Science Section offers courses designed to supplement and support the educational programs of departments throughout the University.

Facilities

The University operates one of the largest computer centers in the metropolitan area. This modern facility is dedicated to the service of all university students, faculty, and staff. The center currently has an IBM System/360 model 67 with two

processors and 4.0 million bytes of semi-conductor high speed memory and several auxiliary data storage devices attached. The operating system used supports both time-sharing terminals as well as batch job submissions.

The Wayne State Computing Center is part of the MERIT Computer Network which joins to Wayne State the computing facilities of the University of Michigan (AMDAHL 470 V/6) and that of Michigan State University (CDC-6500). These facilities are extensions of the local computing facility.

Students in the computer science courses are one of the major users of the computer facilities. Computer use for education and research is strongly encouraged and supported by the University.

The Computer Science Section also has its own computational facility consisting of a Microdata 3290 microprogrammable medium-scale computer with 65,536 bytes of main storage, writable control storage, a ten megabyte disc system, magnetic tape, printer, and telecommunications equipment. This system is used for faculty and student individual research and as a laboratory instrument in several computer science courses.

The Computer Science Section has several terminals which are available to its faculty and students. Included is a Tektronix 4010 storage-tube display for computer graphics applications. The Computer Science Section also maintains a digital electronics laboratory for student use.

Introductory Courses

The Computer Science Section offers a large number of courses at the undergraduate level. Students interested in a general knowledge of computer science or those wishing to enhance some other field of interest will find many of these courses appropriate as an introduction to the field.

Among these courses are some for those interested in only a cultural survey of the field or for those who wish only to acquaint themselves with a knowledge of one or more programming languages. Some of these courses are not intended for persons pursuing a degree program in computer science and one is urged to consult the course listings or consult with an adviser if there is some question in regard to degree credit.

UNDERGRADUATE DEGREE PROGRAMS

The Computer Science Section offers three degree programs for students with widely varying interests: Bachelor of Science in Computer Science, Bachelor of Arts (with a major in computer science), and Bachelor of Science (with a second major in computer science). In addition, the Department of Mathematics offers a combined program in mathematics and computer science for mathematics majors (see Department of Mathematics, option D, page 344).

The B.S. degree in Computer Science has been designed to provide a strong academic foundation in the areas of computer science and information processing. The courses re-

quired provide a good general background in these areas. Prerequisite mathematics is required to a level commensurate with the mathematics necessary in many of the advanced computer science courses in this program. Persons interested in a strong preparation for a career in this field or in pursuing graduate studies in the field are advised to prepare themselves through this degree program.

The Bachelor of Arts (first or second major)* and Bachelor of Science (second major only)* degrees are designed for those who wish to take advantage of the rewarding connections that exist between computer science and most other fields of specialization both within the College of Liberal Arts and in other units of the University. Requiring fewer computer science and mathematics courses than the B.S. in Computer Science degree, they allow students time to gain additional expertise in other areas.

The Bachelor of Arts program is appropriate for those whose interests lie in the application of computers to non-scientific areas. (It may also be suitable for students who decide to enter computer science late in their academic career and who may thus not be able to complete the requirements for the B.S. in Computer Science in a reasonable length of time.)

The B.A. provides a good foundation in computer science and the minimum level of mathematical knowledge required as background for the advanced courses. It should be noted that graduate study in computer science usually requires more mathematics than is required for this degree; students are therefore advised to take as much additional mathematics as their program allows.

The Bachelor of Science second major is provided for those whose primary interest is in one of the sciences but who also wish a major in computer science. The program is similar to the B.A., with slightly more emphasis on mathematics and the mathematical application of computers. Students interested in a science degree with primary emphasis in Computer Science are directed to the B.S. in Computer Science degree.

The requirements for the programs are as follows:

Bachelor of Science in Computer Science

1. The Liberal Arts Group Requirements in English, natural science, humanities, social science, and foreign language (French, German or Russian recommended).
2. Mathematics preparation equivalent to Mathematics 0211, 0212, 0213, 0214, 0215, 0506, 0519, and 0580. Mathematics 0513 is recommended, especially for those who plan to go on for graduate work.
3. Computer Science 0201, 0220, 0221, 0286, 0320, 0440, 0460, 0510, 0520, 0530, 0540, 0545.
4. One additional course must be selected from any of the following: any (non-service) Computer Science course numbered 0500 or above. Electrical and Computer Engineering 0571 and Industrial Engineering 0557. (In special cases, with

* Mathematics majors electing option D are excluded from electing Computer Science as another major.

an adviser's approval, computer science related courses from other departments may be used as an alternate to those listed.)

Bachelor of Arts— with a major in Computer Science

1. The Liberal Arts Group Requirements in English, natural science, humanities, social science, and foreign language (French, German, or Russian recommended).
2. Mathematics 0211, 0213, 0221, and 0506 (or 0500, 0501, 0502, 0503, and 0506)
3. Computer Science 0201, 0220, 0221, 0286 or 0320, 0440, 0510, 0520, 0530, 0540 and 0545.
4. One additional course must be selected from any of the following: Computer Science 0286, 0320, 0460, any (non-service) Computer Science course numbered 0500 or above, Electrical and Computer Engineering 0571 and Industrial Engineering 0557. (In special cases, with an adviser's approval, computer science related courses from other departments may be used as an alternate to those listed.)

Bachelor of Science — second major in Computer Science

1. The Liberal Arts Group Requirements in English, natural science, humanities, social science, and foreign language (French, German, or Russian recommended).
2. Mathematics 0211, 0213, 0215, 0221 and 0506.
3. Computer Science 0201, 0220, 0221, 0286 or 0320, 0440, 0460, 0510, 0520, 0530, 0540, and 0545.

COOPERATIVE PROGRAM

Students who wish to enrich their education with practical computer science may enroll in the Cooperative Program. In this program full-time study terms are alternated with full-time work assignments in cooperating industries. The program may be entered in either the junior or senior year. Some students are enrolled in the Series A (winter-summer work terms) and others in the Series B (fall-spring work terms). Most of the work assignments are in the metropolitan Detroit area on a commuting basis.

Each term a student is on a work assignment he must enroll in Computer Science 0495, Professional Practice in Computer Science. He may also enroll for no more than one course with the approval of the College Co-op Coordinator. A report covering each work assignment is required of the student, and his performance on the job is rated by his industrial supervisor. Salaries and other benefits are paid for the time spent on each work assignment. For details and enrollment procedures contact the College Co-op Coordinator at the University Placement Services.

GRADUATE STUDY

The Department of Mathematics through the Computer Science Section offers an opportunity for advanced graduate course work in computer science. The courses can be chosen to supplement and enrich programs of graduate study in other departments of the University. In particular, a student may earn a Master of Arts or a Doctor of Philosophy degree with a major in mathematics by satisfying the requirements for that degree, taking appropriate electives in computer science, and writing an essay or thesis under the direction of a faculty member in the Computer Science Section.

For those whose primary interest is in the area of computer science itself, the graduate program centers on the degrees of Master of Arts and Master of Science with a major in computer science. As the subject matter encompassed under the heading of computer science has great range and variety, so the master's degree program is very broadly conceived. Students with widely varying backgrounds and goals will find plans of study and research designed to meet their needs.

Two types of graduate work carried out in the Computer Science Section are distinguished. The basis for discriminating between these two is the degree of sophistication in computer science, mathematics and the physical sciences which is necessary to pursue the program. The Master of Science degree is associated with programs in which this level is relatively high. On the other hand, a great deal of advanced work in computer science is independent of the more theoretical aspects of mathematics and the physical sciences. The Master of Arts degree is associated with programs of the latter type.

While the Master of Science degree is designed for persons with strong preparation in computer science, mathematics, the natural sciences, or engineering, the Master of Arts degree will accommodate those with the broadest variety of undergraduate backgrounds and experience.

The great breadth of subjects which are part of computer science, together with the immense diversity of its applications, make it imperative that students in the master's program maintain close contact with their advisers in order to achieve a coherent program directed toward a specific goal. In particular, elections of courses should never be made without prior consultation and approval of the adviser.

ASSISTANTSHIPS

Teaching assistantships are available for qualified students. Such assistantships generally involve teaching and consulting responsibilities of approximately six to eight hours per week.

A limited number of internship positions are also available which provide financial assistance while working approximately twenty hours per week with a cooperating firm or research laboratory. Such positions offer qualified students the opportunity to enhance their education through the special training gained from these firms while pursuing normal graduate studies at the University.

Inquiries and applications should be addressed to the coordinator of the section.

Admission to Graduate Study

There are several general University requirements which must be satisfied. All students seeking entrance to this program must initially meet those requirements. See the section on Liberal Arts Graduate Information and the Graduate Division section of this bulletin.

In addition, in order to enter the Master of Arts or Master of Science degree programs, the applicant must have:

1. A knowledge of computer science equivalent to that obtained in Computer Science 0201, 0220 or 0285, 0221, 0440, and 0510.
2. Mathematical preparation equivalent to that obtained from either Mathematics 0500, 0501, 0502, 0503, and 0506, or 0211, 0213, 0215, 0221, and 0506.
3. Students planning to pursue some of the more technical courses may find it necessary to have undergraduate preparation in multivariable calculus (Mathematics 0212, 0214), differential equations (Mathematics 0519), and other higher level mathematics. A careful examination of prerequisites of advanced courses in the student's area of special interest is recommended before seeking admission.

It is strongly recommended that the students entering the Master of Science program should have an undergraduate degree in computer science, mathematics or one of the natural or engineering sciences.

GRADUATE DEGREES

All graduate degrees are governed by general University regulations. Information concerning these may be found in the Graduate Division section of this bulletin. Degree applicants are expected to inform themselves concerning these regulations and to take the responsibility for conforming to them.

Many students in the master's program may be interested in the inter-relations of computer science with other specific fields. This interest is encouraged. Students will be allowed to elect up to twelve credits of cognate work toward their computer science degree. Cognate course credit cannot be used to satisfy degree requirements unless the course has been approved by the adviser as being consonant with the goals of the individual program. Departmental requirements for specific graduate degrees in computer science follow.

MASTER OF ARTS

The requirements for the Master of Arts degree with a major in computer science are as follows:

1. Forty-eight credits earned in accordance with Plan A or forty-five credits in accordance with Plan B. These plans are described below.
2. Election of all of the following courses not previously completed: Computer Science 0520, 0530, 0540, 0545, 0610.

3. Election of at least three courses numbered 0500 or above. These must be selected from at least three areas of specialization within computer science. These courses are in addition to those listed under "2" above. The intent is to assure that the student has sufficient breadth across the areas of specialization within computer science.

4. Election of at least one additional course numbered 0500 or above in one of the areas of specialization chosen under "3," to assure that the student has some depth within an area of specialization.

5. The student is expected to select his course work to provide sufficient breadth and depth. The following suggested areas of specialization are intended to serve as a guideline for the student in preparing his program. Other areas of computer science may be of interest and could be considered acceptable. The *Plan of Work* is subject to the final approval of the adviser and the Computer Science Graduate Committee.

Artificial Intelligence: Computer Science 0555, 0680, 0682; Psychology 0708.

Compiler Design: Computer Science 0620, 0645, 0646, 0725.

Computer Architecture: Computer Science 0530, 0550, 0630, 0635, 0730.

Information Management Systems: Computer Science 0512, 0515, 0580, 0585.

Language Theory: Computer Science 0520, 0610, 0620, 0685, 0720, 0722, 0725.

Numerical Methods: Computer Science 0561, 0562, 0563, 0670, 0760; Mathematics 0586.

Operating Systems: Computer Science 0540, 0545, 0580, 0585, 0640, 0740, 0768, 0775.

Optimization: Computer Science 0670, 0675; Mathematics 0586.

Simulation Computer Science 0560, 0565, 0665, 0682, 0768.

6. By the time eighteen credits have been earned, a *Plan of Work*, approved by a department adviser, should be submitted to the Chairman of the Graduate Committee in computer science. At this time the Computer Science Graduate Committee will act on the application for candidacy. The student will not be allowed to take more than eighteen credits in the master's program unless candidacy has been established. After two years from the time of admission to candidacy, and if the student has not graduated yet, the *Plan of Work* must be reviewed with the graduate adviser for possible adjustment.

7. In the *Plan of Work* the student will state his choice of one of the following plans:

Plan A — Completion of a thesis for twelve credits with the remaining credit earned in course work.

Plan B — Completion of an essay for four credits with the remaining credit earned in course work.

The choice of plan must be approved by the Computer Science Graduate Committee.

8. A written comprehensive examination is required of all students.

MASTER OF SCIENCE

The requirements for the Master of Science degree with a major in computer science are as follows:

1. Forty-eight credits earned in accordance with the plan described under "7" below.
2. Election of all of the following courses not previously completed: Computer Science 0520, 0530, 0540, 0545, 0561, 0610.
3. Election of at least two courses numbered 0500 or above. These must be selected from at least two areas of specialization within computer science. These courses are in addition to those listed under "2" above. The intent is to assure that the student has sufficient breadth across the areas of specialization within computer science.
4. Election of at least two additional courses numbered 0500 or above in one of the areas of specialization chosen under "3" above, to assure that the student has sufficient depth within his area of specialization.

5. The student is expected to select his course work to provide sufficient breadth and depth. The following suggested areas of specialization are intended to serve as a guideline for the student in preparing his program. Other areas of computer science may be of interest and could be considered acceptable. The *Plan of Work* is subject to the final approval of the adviser and the Computer Science Graduate Committee.

Artificial Intelligence: Computer Science 0555, 0680, 0682; Psychology 0708.

Compiler Design: Computer Science 0620, 0645, 0646, 0725.

Computer Architecture: Computer Science 0530, 0550, 0630, 0635, 0730.

Information Management Systems: Computer Science 0580, 0585.

Language Theory: Computer Science 0520, 0610, 0620, 0685, 0720, 0722, 0725.

Numerical Methods: Computer Science 0561, 0562, 0563, 0670, 0760; Mathematics 0586.

Operating Systems: Computer Science 0540, 0545, 0580, 0585, 0640, 0740, 0768, 0775.

Optimization: Computer Science 0670, 0675; Mathematics 0586.

Simulation: Computer Science 0560, 0565, 0665, 0682, 0768.

By the time eighteen credits have been earned, a *Plan of Work*, approved by a department adviser, should be submitted to the chairman of the graduate committee in computer science.

It is the time the Computer Science Graduate Committee will be making application for candidacy. The student will not be allowed to take more than eighteen credits in the master's program unless candidacy has been established. After two

years from the time of admission to candidacy, and if the student has not graduated yet, the *Plan of Work* must be reviewed with the graduate adviser for possible adjustment.

7. Completion of Plan A consisting of a thesis for twelve credits with the remaining credit earned in course work.

8. A written comprehensive examination is required of all students.

NOTE—Candidates for the Master of Arts and Master of Science degrees with a major in computer science are exempt from the requirement that eight credits in the major field must be in courses numbered 0700 and above.

Recommended Elective Courses—Several departments offer courses which are related to computer science. Students who need elective credit and wish to pursue these related courses should have approval of their adviser.

In particular, for those students interested in pursuing additional work in mathematics, the following courses are recommended electives: Mathematics 0514, 0542, 0555, 0581, 0582, 0583, 0586, 0587, 0591, 0612, 0618, 0700, 0701.

COURSES OF INSTRUCTION¹ (CSC)

Undergraduate Courses

0201. Introduction to Computer Science. Cr. 4.

No credit after any other computer science courses. Prereq: one and one-half units of high school algebra. Fundamental concepts of computer science; concepts of machine, algorithms, higher and lower level languages, problem solving using the BASIC language.

0220. Concepts of Computer Science I. Cr. 4.

No credit after CSC 0280 or 0285. Prereq: CSC 0201 or equiv. Formulation and coding of algorithms for digital computers; coding and checkout of elementary problems for business and mathematics. The FORTRAN language.

0221. Concepts of Computer Science II. Cr. 4.

Prereq: CSC 0220 or 0285. Concepts of recursion, block structure, storage classes, interrupts, bit and string manipulation; the PL/I programming language.

0285. Introduction to Digital Computing. Cr. 4.

No credit after CSC 0220 or former 0280; only 2 credits after CSC 0201. Prereq: MAT 0180. Problem solving; problem formulation, analysis and design of algorithms; data representation; use of flow charts and the FORTRAN programming language in implementing algorithms; introduction to computer systems; use of the MTS command language.

0286. Introduction to Data Processing. Cr. 4.

Prereq: CSC 0201 or 0285. COBOL programming; survey of business applications and examples; file organization and access methods; data base system concepts.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

0320. Survey of Higher Level Languages. Cr. 3.

Prereq: CSC 0221. Syntax and semantics of certain special purpose and universal programming languages; formulation and coding of non-numerical algorithms for digital computers; coding and check-out.

0395. Problems Solving Laboratory. Cr. 1-4 (Max. 9).

Prereq: CSC 0220 or 0285 or consent of instructor. Term projects related to areas of interest.

0440. Introduction to Assembler Languages. Cr. 4.

Prereq: CSC 0220 or 0285. Machine languages and basic assembler languages; the realization of algorithms in basic assembler language using the assembler language of the available machine (IBM S/360); the internal representations of data; character, integer, decimal, and floating point; binary, decimal, and floating point arithmetic.

0460. Introduction to Numerical Methods. Cr. 4.

No credit after MAT 0571. Prereq: CSC 0220 or 0285 and MAT 0215. Numerical methods in the solution of equations and systems; interpolation and approximations; differentiation and integration; ordinary differential equations.

0495. Professional Practice in Computer Science. Cr. 1 (Max. 4).

Prereq: junior or senior standing and consent of co-op coordinator. Open only to students in Computer Science Co-Op Program. Offered for S and U grades only. Review of computer science practical experiences resulting from participation in the cooperative work-study program.

Undergraduate and Graduate Courses

0501. Computers and Research (L.S. 5496) (U.P. 0552) (CRJ 0531). Cr. 4.

No credit after CSC 0201, 0220, or 0285; no credit for computer science majors. Prereq: one and one-half units high school algebra. Introduction to computing, data processing, and computer utilization for research; computer languages, library programs and their use; job control languages.

†0503. Computers in Statistical Data Analysis. (3,1). Cr. 4.

Prereq: MAT 0221 and CSC 0220 or 0285 or 0501. Basic concepts of correlation, testing hypotheses, chi square t and f statistics, linear regression, analysis of variance and discriminant analysis using SPSS, OSIRIS and CONSTAT packages to solve typical problems in social sciences and other areas of interest; understanding and interpreting the output.

†0505. Computers in Scientific Applications. (3,1). Cr. 4.

No graduate credit for computer science majors. Prereq: CSC 0220 or 0285 or 0501 or consent of instructor. Sub-programs; modular program design; introduction to computer graphics and the use of the calcomp plotter; use of scientific sub-routine packages in matrix operations, interpolation, sums and limits of series, and generation of random variables.

0510. Introduction to Data Structures. Cr. 4.

No credit after MAT 0574. Prereq: CSC 0221 and MAT 0213 or 0502. Linear lists, strings, arrays, orthogonal lists, trees and graphs; storage systems and structures; storage allocation; sorting and searching techniques; applications to programming languages.

0520. Programming Languages. Cr. 4.

Prereq: CSC 0440; coreq: CSC 0510. Existing programming languages; structure of simple statements, global structures of algorithmic

mic languages and storage allocation. Formal descriptions of syntax and semantics of programming languages; correctness of programs.

0530. Elements of Computer Design I. (3,2). Cr. 4.

Prereq: CSC 0440. Switching algebra; realization of switching functions; analysis, design and minimization of combinational logic; analysis and design of sequential circuits; hazard and race analysis.

0540. Advanced Assembler. Cr. 4.

Prereq: CSC 0440. Assembler macro languages and macros; the use of macros in the realization of algorithms; supervisor services; techniques of communication with supervisors; interrupt processing; privileged instructions and storage protection; input and output techniques; channel programming.

0545. Introduction to Operating Systems. Cr. 4.

Prereq: CSC 0540. Services provided by operating systems and their underlying concepts. Batch, multi-programming, and time-sharing systems; job control languages; program loading; data management; concurrent processes; deadlocks, mutual exclusion, and synchronization; virtual memory; resource allocation; protection.

0550. Teleprocessing and Telecommunications. Cr. 4.

Prereq: CSC 0540 and MAT 0580. Communication line characteristics; modems; synchronous and asynchronous line protocols; error detection schemes; elements of information theory, Huffman codes, Hamming distance, and Polynomial codes; considerations in the design of telecommunication systems.

0555. Introduction to Statistical Pattern Recognition. Cr. 4.

Prereq: MAT 0580, CSC 0220 or equiv. Bayes decision theory; decision surfaces; estimation of misclassification; supervised and unsupervised learning; feature selection algorithms; non-parametric methods; clustering techniques; sequential procedures.

0560. Discrete System Simulation. Cr. 4.

Prereq: CSC 0510 and MAT 0221 or 0504. Simulation, its tools and techniques; formulation, implementation and validation of models; applications.

0561. Numerical Analysis I. Cr. 4.

No credit after MAT 0572. Prereq: CSC 0460. Accuracy and efficiency of numerical methods by digital computer; iterative solution of non-linear equations and systems; interpolation and approximations; numerical differentiation and integration; difference equations.

0562. Numerical Analysis II. Cr. 4.

No credit after MAT 0571. Prereq: CSC 0561 and MAT 0213. Matrix operations; evaluation of determinants; solution of systems of linear equations and matrix inversion; calculation of eigenvalues and eigenvectors.

0563. Numerical Analysis III. Cr. 4.

No credit after MAT 0573. Prereq: CSC 0562 and MAT 0519. Numerical solution of ordinary differential equations; difference methods in partial differential equations.

0565. Continuous System Simulation I. Cr. 4.

Prereq: CSC 0460 and MAT 0519. Comprehensive survey of the application of digital and analog computers to the simulation of systems governed by ordinary differential equations; system formulation; elements of digital and analog computer systems; numerical techniques.

† May not count toward a graduate major in this department, but elected for minor or cognate credit.

0580. Large-Scale Software Development. Cr. 4.

Prereq: CSC 0540. Methods of constructing large software systems; dealing with frequent changes, many revisions, and many programmers.

0585. Information Organization and Retrieval. Cr. 4.

Prereq: CSC 0510. Hierarchy constructions; dictionary systems; statistical systems; syntactic systems; search strategies; I/O evaluation; automatic question answering; automatic abstracting.

0590. Directed Study. Cr. 1-5 (Max. 12).

Undergrad. prereq: consent of adviser and written consent of chairman; grad. prereq: consent of adviser, written consent of chairman and graduate officer. Individual study as agreed on by student and supervising faculty. Primarily for material not covered in regular courses.

0595. Advanced Problem Solving Laboratory. (0,1-4). Cr. 1-4 (Max. 9).

Prereq: consent of instructor. Problems on various topics.

0610. Theory of Automata. Cr. 4.

Prereq: MAT 0506 or equiv. and CSC 0530. Finite state machines; Mealy and Moore models; reduced machines; machine equivalence; machine decomposition; incomplete machines; regular expressions; relative power of classes of automata.

0620. Introduction to Formal Languages. Cr. 4.

Prereq: CSC 0520 and 0610. Grammars and types of formal languages; relationships between formal languages and automata; Turing machines, Markov algorithms, recursive functions, Church-Turing hypothesis; unsolvable problems.

0630. Elements of Computer Design II. Cr. 4.

No credit after MAT 0679. Prereq: CSC 0530. Binary and complement arithmetic; division and multiplication algorithms. Design of adders; serial and parallel operation; principles and organization of storage devices; control synthesis and microprogramming.

0635. Minicomputers. (3,1). Cr. 4.

Prereq: CSC 0440. Introduction to instructions, use and applications of minicomputers and their architecture; real-time considerations for control of processes or experiments or stand-alone computation; asynchronous and synchronous data transfers, interrupt systems, and direct memory access.

0640. Design of Operating Systems. Cr. 4.

Prereq: CSC 0510, 0540, and 0545. System control blocks; concurrent processes; scheduling algorithms; file systems; implementation of virtual memory; pertinent hardware features.

0645. Structure of Compilers I. Cr. 4.

Prereq: CSC 0510 and 0520. Lexical analysis; syntactic analysis; syntactic error detection and correction; symbol tables; intermediate representation of programs.

0646. Structure of Compilers II. Cr. 4.

Prereq: CSC 0540 and 0645. Object code generation; global and local code optimization; description of semantics.

5. Continuous System Simulation II. Cr. 4.

Prereq: CSC 0565. Mathematical formulation and computer techniques for the simulation of systems governed by partial differential equations; digital, analog, and hybrid methods and the use of computer-oriented simulation languages.

0670. Computational Aspects of Optimization. (3,1). Cr. 4.

No credit after MAT 0622. Prereq: CSC 0562, MAT 0586 or 0587 or equiv. Computer methods of solution in optimization theory; systematic and random search techniques; linear, non-linear and dynamic programming; gradient methods.

0675. Network Analysis. Cr. 3.

Prereq: CSC 0285 and MAT 0586 or 0587 or equiv. Interconnected points and lines; incidence and structural properties of finite graphs; Ford-Fulkerson theory on network flows; multi-commodity flows; selected applications.

0680. Artificial Intelligence. Cr. 4.

Prereq: CSC 0510 and MAT 0506. Heuristic programming; theorem proving; game playing programs; decision making programs; question answering programs.

0681. Human Information Processing (PSY 0681). Cr. 4.

Prereq: MAT 0221 or 0580; graduate standing or consent of instructor. Mathematical models of human processing; psychological models of human memory; use of information theory in studying human processing; human decision-making and the effect of information on human opinions.

0682. Introduction to Adaptive Systems. Cr. 4.

Prereq: CSC 0680. MAT 0221, or 0580. Several natural and artificial systems proposed as models suitable for computer adaptation (learning under uncertainty); analysis of the extent of generality, feasibility, and efficiency of such models.

0685. Analysis of Natural Language. (3,1). Cr. 4.

Prereq: CSC 0620. Language structure; integrated generative language theory; automatic language analysis.

0699. Topics in Computer Science. Cr. 1-4 (Max. 12).

Prereq: senior or graduate standing and consent of instructor. Topics to be announced in *Schedule of Classes*.

Graduate Courses

0720. Formal Grammars and Syntactic Analysis. Cr. 4.

Prereq: CSC 0620. Grammars and automata; syntactic analysis; recognizers, analyzers, and generators.

0722. Formal Definition of Semantics. Cr. 4.

Prereq: CSC 0620. Models of the formal definition of programming language semantics; Vienna Definition Language (VDL); Lambda Calculus.

0725. Extensible Languages. Cr. 4.

Prereq: CSC 0646. Macro systems; syntactic extension; data type extension; operator extension; control extension; review of extensible language efforts, ECL, MAD, MAD/I, Algol-D.

0730. Computer Architecture. Cr. 4.

Prereq: CSC 0630 and 0640 or consent of instructor. Memory hierarchies, addressing schemes, virtual memory. Serial and parallel processors, multiprocessing, array processors. Cost analysis and economic consideration in computer design. Software hardware tradeoffs.

0740. Advanced Design of Operating Systems. Cr. 4.

Prereq: CSC 0640 and MAT 0580. Abstractions of operating systems; scheduling anomalies; special purpose scheduling algorithms; mechanisms for the control of concurrent processes; deadlock prevention; proving correctness of operating systems.

0760. Advanced Numerical Methods. Cr. 4.

Prereq: CSC 0563, MAT 0524. Initial and boundary value problems; convergence and stability of finite difference methods; numerical solution of integral equations; experiments with existing algorithms.

0768. Modeling and Measurement of Computer Systems. Cr. 4.

Prereq: CSC 0560, 0640, and MAT 0587. Mathematical and simulation models of operating systems, hardware systems, and their components. Mechanisms for measuring system parameters; system tuning; prediction of the effect of proposed system changes.

0775. Administration of Computing Centers. Cr. 4.

Prereq: consent of instructor. Organization; pricing algorithms; equipment evaluation and procurement; reliability; management problems peculiar to computing centers.

0790. Directed Study. Cr. 1-5 (Max. 18).

Prereq: consent of adviser and graduate officer.

0799. Master's Essay Direction. Cr. 3-4.

Prereq: consent of adviser.

0813. Advanced Topics in Computer Science. Cr. 3-6 (Max. 18).

Prereq: consent of instructor. Advanced topics of current interest.

0850. Computer Science Seminar. Cr. 1-4 (Max. 12).

Prereq: consent of instructor and adviser. Subjects of current interest and research; student reports.

0899. Master's Thesis Research and Direction. Cr. 2-12 (12 required).

Prereq: consent of adviser.

EAST EUROPEAN STUDIES

Office: 443 Manoogian Hall

MASTER OF ARTS

Plan A—Forty-eight credits in course work including a total of twelve credits for the thesis.

This major is comprised of courses offered by the several departments which provide instruction in East European studies: geography, history, political science, and Slavic and Eastern languages. In most cases, the field selected will be that of the undergraduate major. The particular combination of courses will be decided in consultation with the graduate adviser and will depend on the student's interest and previous preparation.

Candidacy must be established by the time eighteen credits have been earned.

Degree Requirements—Course elections may include four credits in advanced language training for research purposes (Slavic 0711). The elections must include a graduate seminar, graduate courses selected from the Department of Slavic and Eastern Languages, a seminar, and/or courses selected from the following: Economics 0507; Geography 0525, 0532, 0786; History 0559, 0560, 0561, 0562, 0566, 0567, 0569, 0888; Political Science 0505, 0506, 0566, 0687, 0706, 0810; and Anthropology 0629. Substitutions may be made only with the approval of the graduate adviser.

An interdepartmental committee will advise the Chairman of the Department of Slavic and Eastern Languages in assisting the student to work out his program of study.

Before beginning research for the thesis, the student must have a reading knowledge of at least one East European language appropriate for the area and purpose of his research, or be willing to make up this deficiency without graduate credit. The thesis may be under the direction of a major adviser in any of the departments which provide instruction in East European studies or it may be under the direction of the Chairman of the Department of Slavic and Eastern Languages. A final oral examination is required.

ECONOMICS

Office: 960 Mackenzie Hall

Chairman: David J. Smyth

Academic Services Officer: Margot A. Calarco

PROFESSORS

David I. Fand, Thomas J. Finn, Jr., I. Bernard Goodman, Mark L. Kahn, Joy H. Levin, †Samuel M. Levin (Emeritus), John M. Mattila, John D. Owen, Douglas S. Paauw, Karl W. Roskamp, Lawrence H. Seltzer (Emeritus), David J. Smyth, Wilbur R. Thompson, C. Emery Troxel (Emeritus)

ASSOCIATE PROFESSORS

R. King Adamson, James L. Hamilton, Gail E. Makinen, Wayne J. Shafer

ASSISTANT PROFESSORS

Robert B. Anderson, J. Gregory Ballentine, Susan S. Bies, William A. Bomberger, Robert C. Dauffenbach, Jr., Peter H. Henning, Raj K. Jain, Neil W. Mather, Richard E. Shaw, Miron Stano, Jerome M. Wolgin

DEGREE PROGRAMS

Bachelor of Arts — with a major in economics

Master of Arts — with a major in economics

Doctor of Philosophy — with a major in economics

(Also see Master of Urban Planning with specialization in economics, under Urban Planning)

Economic problems are of central importance in modern society, and all social problems have vital economic aspects or consequences. An understanding of economic relationships and systems is an indispensable part of a liberal education. Non-majors are invited to consult the Department of Economics about suitable cognate or elective courses.

Economics is an appropriate major for students who seek a better understanding of the modern economic world; for those who want a relevant background for careers in such fields as business, journalism, law, government or public service, and industrial relations; and for those who intend to become professional economists. Competent graduates trained in economics are in substantial demand at universities, large business and labor organizations, trade associations, and many governmental agencies. The Department of Economics offers degrees through the Ph.D. to prepare qualified students for these opportunities, and will assist majors and graduate students in locating suitable positions. Various financial aids, including teaching assistantships and fellowships, are available or qualified graduate students in residence.

Students who are considering an economics major should take Economics 0101 and 0102 as soon as possible, preferably in the freshman year. They are also advised to pass Mathe-

matics 0150 or 0180 prior to the junior year unless they demonstrate eligibility for Mathematics 0211 or 0500 in the mathematics qualifying examination.

Students who contemplate graduate work in economics should undertake either the Mathematics 0211 or 0500 sequence as early as is feasible, and should consult with an undergraduate adviser in economics as to which sequence is preferable.

BACHELOR OF ARTS

Major Requirements and Electives — A major consists of forty-eight credits in economics. These must include: Economics 0101 and 0102 — Survey of Economics; Economics 0501 and 0503 — Economic Analysis; and Economics 0520 and 0521 — Statistics. Majors are strongly advised to complete required courses in economics during their junior year.

Other courses are elective, but the student must elect at least one from each of three of the following fields: economic history and development; money and banking; public finance; international economics; industrial organization; labor and human resource economics; urban and regional economics.

A maximum of four credits in accounting may be counted as credit in economics.

The student should consult his major adviser to determine the economics electives that are best suited to his intellectual and professional aims. In particular, the adviser should be consulted on preparation for graduate work in economics; for industrial or commercial employment; and for governmental economics and statistics positions.

Cognate Courses — Economics majors should consult their adviser about recommended cognate courses. A suitable choice depends upon, and may vary considerably with the interests and objectives of the particular student. Courses in education are required of those who desire a Secondary School Teaching Certificate. Undergraduates who plan graduate study in economics are encouraged to elect mathematics. Courses in other social sciences are useful complements to economics. In some cases, up to sixteen additional credits in accounting may be elected for credit toward a liberal arts degree as cognate to a major in economics. (These may not be used to fulfill the forty-eight credits in economics required for the economics major.)

Combined Curriculum for Secondary Teaching — Economics majors wishing to enter secondary teaching should see this entry under Undergraduate Curricula in the Liberal Arts section for a description of the requirements and procedures for combining a degree in Liberal Arts with a teaching certificate. The major requirements as stated above must be completed.

Honors Program for Majors — An economics major who wishes to graduate with honors in economics, and who has a strong academic record, should apply to the departmental honors adviser for admission to the economics honors program, not later than the first quarter of his junior year. Economics 0498, Senior Honors Seminar (four credits per quarter for three quarters), must be taken during the senior year (or during the student's last full academic year prior to gradua-

tion). In addition, the student must take one interdisciplinary seminar offered by the Liberal Arts Honors Program. Consult the department office for additional information.

MASTER OF ARTS

Admission — The department requires an undergraduate honor point average of at least 3.0 for regular admission. Exceptions may be authorized only by the department's Admissions Committee.

Preliminary Course Requirements — All students admitted to the Masters program in Economics must complete the following courses if these courses (or their equivalents) have not been completed when the student was an undergraduate:

ECO 0501. Intermediate Economic Analysis I
ECO 0503. Intermediate Economic Analysis II
ECO 0520. Economic and Business Statistics I
ECO 0521. Economic and Business Statistics II

No graduate credit may be earned for Economics 0520. The student may earn graduate credit for either Economics 0501 or 0503, but not for both.

Candidacy — To be eligible for candidacy, the student must file a *Plan of Work*, approved by the masters program adviser, with the graduate officer of the College of Liberal Arts. Candidacy will not be authorized unless the applicant's honor point average is 3.0 or better.

Generally, students enrolled in masters degree programs are expected to file a *Plan of Work* by the time twelve to eighteen graduate credits have been earned. The applicant should petition the masters program adviser to advance his rank to "Candidate."

Degree Requirements — The Department of Economics offers three alternative plans under which the M.A. Degree may be earned. With the approval of the M.A. program adviser, the student must choose one of these options by the time eighteen graduate credits have been earned:

Plan A (Thesis) — Forty-eight graduate credits are required, including a total of twelve credits earned by writing a thesis. Economics 0602, 0610, and either 0620 or 0720 must be elected. At least two courses, exclusive of Economics 0795, must be completed at the 0700 or 0800 level.

Plan B (Essay) — Forty-eight graduate credits are required, including a total of four credits earned by writing an essay. Economics 0602, 0610, and either 0620 or 0720 must be elected. At least two courses, exclusive of Economics 0795, must be completed at the 0700 or 0800 level.

Plan C (No thesis or essay) — Forty-eight graduate credits are required, including Economics 0602, 0610, 0620 or 0720, and at least three other 0700 or 0800 level courses in Economics, exclusive of Economics 0795.

A final oral examination is required for all three plans (A, B and C).

DOCTOR OF PHILOSOPHY

In addition to the admission requirements and procedures of the Graduate Division, the Graduate Record Examination and three letters of recommendation are required of all applicants to the Ph.D. program. Letters of recommendation must be from officials or teaching staff of the institution(s) most recently attended.

All applications for admission to the doctoral program in economics must have the approval of the department's admissions committee. Applications will be considered from superior students with degrees in areas other than economics. The Ph.D. is a scholarly degree, indicating not merely superior knowledge of economics but also intellectual initiative and an ability to design and carry out independent research. Students in their pre-candidacy stage will be judged on the basis of these attributes as well as on their grade-point performance.

Doctoral students are required to attend the department's faculty-student workshops and are encouraged to present research papers at these meetings.

Admission to candidacy for the doctoral degree will usually require at least two years of full-time graduate study beyond the bachelor's degree. No part-time students are permitted in the Ph.D. program. Candidacy is granted upon fulfillment of the following requirements:

(1) Special proficiency in economic theory and in two of the following eight fields: economic history and development; money and banking; public finance; industrial organization; quantitative methods; labor and human resource economics; urban and regional economics; and international economics. Proof of proficiency is successful completion of the written and oral qualifying examinations for Ph.D. candidacy in economic theory and the two other selected fields.

(2) Demonstration of basic competence in quantitative methods (Economics 0720, 0722 and 0723). Doctoral students who have not had equivalent mathematics will be required to take Mathematics 0500, 0501 and 0502.

(3) Demonstration of basic competence in the history of economic thought. Doctoral students are required to take Economics 0718.

Cognate Fields — One cognate field from other subject areas in rare cases may be substituted for one of the two elective fields with prior departmental approval.

Course Credit and Residence Requirements — Students are referred to the graduate academic regulations for the general course credit and residence requirements for the Ph.D. degree. The departmental graduate committee should be consulted for special requirements.

The Doctoral Dissertation — The doctoral candidate is required to submit a doctoral dissertation on a topic satisfactory to his Faculty Dissertation Committee and designed to show his proficiency in economic analysis, his capacity for independent and creative research, and his ability to perfect follow through on an appropriate research design.

Final Lecture—Upon acceptance of the dissertation, the student will deliver a final lecture in accordance with Graduate Division procedures.

Fellowships and Assistantships—Fellowships and graduate assistantships in teaching or research are available each year to qualified graduate students. Those interested in applying should contact the Department of Economics by February 15 of the preceding academic year, although later applications will be considered on the basis of available opportunities. The department also sponsors qualified Wayne State students in applying for graduate fellowships to public and private national foundations and other fellowship granting agencies.

COURSES OF INSTRUCTION¹ (ECO)

Courses numbered 0700 and above are ordinarily open only to graduate students; however, qualified seniors may, with prior departmental and dean's approval, be admitted to courses in the 0700-0799 range.

Introductory Economics

0101. Survey of Economics I. Cr. 4.

Scope of economics and the task of the economist in modern society. Problems of unemployment and inflation; money, banking, price level; public policies to promote stability and growth. This is the recommended course for students who plan to elect only one course in economics.

0102. Survey of Economics II. Cr. 4.

Supply, demand, price at level of the firm and industry; business institutions and their operation; determinants of wage and salary levels, interest rates, rent, profits, income distribution; public policy in relation to business and labor.

0495. Current Economic Issues. Cr. 4 (Max. 8).

Prereq: ECO 0101 and 0102 or consent of instructor. Selected economic issues of current interest studied in depth. Analysis of readings in specific areas of public policy in economics. Topics to be announced in *Schedule of Classes*.

Field A—Economic Theory

0501. Intermediate Economic Analysis I. Cr. 4.

Prereq: ECO 0102, MAT 0150 or 0180 or equiv. based on satisfactory score on mathematics placement examination. Theory of the firm and consumer. Analysis of a price system as a means to efficient allocation of productive resources.

0502. Introduction to Mathematical Economics I. Cr. 4.

Prereq: ECO 0501 and MAT 0211 or 0500. Basic mathematical methods applied to economic analysis, including elementary applications of calculus, analytical geometry, and linear algebra. Problems to illustrate applications in microeconomics and macroeconomics.

0503. Intermediate Economic Analysis II. Cr. 4.

Prereq: ECO 0101, MAT 0150 or 0180 or equiv. based on satisfactory score in mathematics placement examination. Theory of

national income determination. National output and income, saving and capital formation.

0507. Socialist Economic Thought. Cr. 4.

Prereq: ECO 0101 and 0102. Development of socialist theory with emphasis on Marx and his followers.

0518. History of Economic Thought. Cr. 4.

Prereq: ECO 0501 and 0503. Development of economic thought; important contributions to development of economic theory since 1750.

0602. Price and Allocation Theory. Cr. 4.

No credit after Economics 0700. Prereq: ECO 0501 or equiv. Introduction to the theory of consumer choice and the theory of production, and other selected topics. Primarily for M.A. students and for Ph.D. students who want to review.

0604. Introduction to Mathematical Economics II. Cr. 4.

Prereq: ECO 0502, 0503, and MAT 0501. Continuation of Economics 0502. Applications of differential and difference equations and the calculus of variations to problems in growth and capital theory.

0610. Macroeconomics. Cr. 4.

No credit after Economics 0710. Prereq: ECO 0503 or equiv. Determination of national income, unemployment and interest rates; theories of inflation; effectiveness of macro-economic public policies. Primarily for M.A. students and for Ph.D. students who want to review.

0700. Microeconomic Theory I. Cr. 4.

Prereq: ECO 0501 and MAT 0211 or 0500 or equiv. Basic mathematical methods applied to economic analysis. Examples of the application of optimization methods and the comparative static technique.

0702. Microeconomic Theory II. Cr. 4.

Prereq: ECO 0700 or equiv. Theory of choice; theory of cost and production; theory of the competitive firm. Price and output in non-competitive markets.

0707. Microeconomic Theory III. Cr. 4.

Prereq: ECO 0702. General competitive equilibrium and welfare economics.

0709. Programming and Game Theory. Cr. 4.

Prereq: ECO 0700 and MAT 0502. Linear and non-linear programming with application to the theory of the firm and to resource allocation problems. Two-person game theory as an introduction to decision making under uncertainty.

0710. Macroeconomic Theory I. Cr. 4.

Prereq: ECO 0503 or equiv. Determination of national income, employment, interest rates and the price level; static and dynamic models; cycle and growth models; classical, Keynesian and neo-Keynesian models.

0711. Macroeconomic Theory II. Cr. 4.

Prereq: ECO 0710 or equiv. Continuation of Economics 0710.

0712. Macroeconomic Theory III. Cr. 4.

Prereq: ECO 0711. Continuation of Economics 0710 and 0711.

0718. Seminar in History of Economic Thought. Cr. 4.

Prereq: consent of instructor. Advanced inquiry into development of economic doctrine. (This course is also considered a Field B elective.)

¹661 for interpretation of numbering system, signs and units.

0808. Seminar on Selected Advanced Problems in Microeconomics. Cr. 4.

Prereq: ECO 0707 or consent of instructor. Topics in theory of rational decisions, capital theory, welfare economics; emphasis on recent developments, economic theory of recent advances in other behavioral sciences.

0810. Seminar on Selected Advanced Problems in Macroeconomics. Cr. 4.

Prereq: ECO 0712 or consent of instructor. Topics in general equilibrium theory and in economic dynamics; emphasis on recent developments.

Field B — Economic History and Development

0504. Introduction to Development Economics. Cr. 4.

Prereq: ECO 0101 and 0102 or consent of instructor. National poverty and economic growth viewed from an historical and theoretical perspective; particular emphasis on national and international policies.

0543. Comparative Economic Systems. Cr. 4.

Prereq: ECO 0101 and 0102 or consent of instructor. Comparative analysis of capitalism, socialism, communism; emphasis on differences in pricing, allocation of resources, functional and personal distribution of income, economic planning.

0561. Economic Development of the United States. Cr. 4.

Prereq: ECO 0101 and 0102 or consent of instructor. Determinants of economic growth in the United States since its colonial beginnings.

0562. Economic History of Africa. Cr. 4.

Prereq: ECO 0101 and 0102 or consent of instructor. Economic development of sub-Saharan Africa from prehistoric times to the present; emphasis on the colonial period.

0563. Economic Development of Africa. Cr. 4.

Prereq: ECO 0504 or consent of instructor. Contemporary problems of African development in the context of modern development theory.

0703. Historical Perspective of Development. Cr. 4.

Prereq: consent of instructor. Developmental history of several advanced countries, emphasizing growth of population, product, structure of output and distribution of income. Stage models and other historical approaches to economic development.

0704. Theory of Economic Development. Cr. 4.

Prereq: consent of instructor. Development theory emphasizing closed and open dualism and intersectoral interaction during the development process.

0724. Development Policy and Planning. Cr. 4.

Prereq: consent of instructor. Crucial policy decisions facing developing nations such as the extent and types of planning to be used; resource allocation among sectors and commercial policy.

0804. Seminar in Economic History and Development. Cr. 4.

Prereq: consent of instructor. Selected topics in nineteenth century industrialization. Agriculture-industry interrelations, international migration of capital and labor, secular trends in prices and output. Similarities and contrasts with contemporary industrializing economies.

0805. Seminar on Selected Topics in Economic Development. Cr. 4.

Prereq: consent of instructor. In-depth analysis of a few of the following: agriculture, migration, population growth, import substitution, planning, foreign assistance, education and regional cooperation.

0824. Dissertation Workshop in Development. Cr. 4 (Max. 12).

Prereq: completion of qualifying examination in economic history and development. Evaluations of proposed and current research in economic history and development.

Field C — Money and Banking

0505. Money and Banking I. Cr. 4.

Prereq: ECO 0101. Role of the Federal Reserve System, the commercial banks, and the non-bank public (including financial intermediaries) in determining the money supply; central banking and techniques of monetary control; indicators and targets of monetary policy; and how money affects economic activity.

0506. Money and Banking II. Cr. 4.

Prereq: ECO 0503 and 0505. Structure and functioning of money and capital markets, objectives and techniques of central banking, use and limitations of monetary policy as a tool for furthering full employment, management of public debt, avoidance of inflation or deflation.

0705. Seminar in Monetary Policy. Cr. 4.

Prereq: consent of instructor. Objectives, mechanisms, economic effects of alternative monetary and banking policies; interrelations of the latter with fiscal policies. Recent American and foreign experience, proposed changes in domestic monetary and banking structure, relation of monetary and banking structures, relation of monetary policy to business fluctuations, problems arising from the International Monetary Fund and Bank.

0706. Seminar in Monetary Theory. Cr. 4.

Prereq: consent of instructor. Development of monetary theory; present theories of relations between money, prices, national income; methods of monetary control employed by governmental authorities; current controversies.

0717. Seminar in Monetary and Fiscal Policy. Cr. 4.

Prereq: ECO 0706 or 0715 or consent of instructor. Effects of alternative government financial policies on stability and growth of income and employment, on price level; criteria for determining optimum expenditure levels and patterns. (This course is also considered a Field D elective.)

0806. Seminar in Leading Problems in Monetary and Fiscal Policy. Cr. 4.

Prereq: consent of instructor.

0807. Workshop in Monetary Economics. Cr. 4 (Max. 12).

Prereq: consent of instructor. Advanced research seminar with subject determined by the specialized interests and skills of participants and in light of national and international developments in monetary affairs.

Field D — Public Finance

0513. Introduction to Public Finance: Taxation. Cr. 4.

Prereq: ECO 0102 or consent of instructor. Role of taxati

market economy, its nature and historical development; principles of taxation; incidence of taxes; U.S. federal tax structure; influence of U.S. federal taxes on resource allocation, income, distribution, economic stability and growth.

0514. Introduction to Public Finance: Expenditures. Cr. 4.

Prereq: ECO 0102 or consent of instructor. Role of government in a market economy; nature of public expenditures and their historical development; influence of government expenditures on resource allocation, income distribution, economic stability and growth; problems of public debt.

0515. State and Local Finance (UP 0525). Cr. 4.

Prereq: ECO 0102 or consent of instructor. Taxation, expenditure and debt management problems of state and local governments; grants-in-aid, subsidies, shared revenues and coordination of the financial policies of federal, state and local governments. Attention to problems, policies, and practices of governmental units in Michigan and neighboring states.

0714. Public Finance I. Cr. 4.

Prereq: ECO 0514 or consent of instructor. Problems of budgeting, government expenditure, incidence shifting, tax effects, national debt, stabilization and economic growth.

0715. Public Finance II. Cr. 4.

Prereq: consent of instructor. Continuation of Economics 0714.

0814. Seminar in Public Finance. Cr. 4.

Prereq: consent of instructor. Selected topics in public finance and research problems.

**0815. Dissertation Workshop in Public Finance.
Cr. 4 (Max. 12).**

Prereq: completion of qualifying examination in public finance. Evaluations of proposed and current research in public finance.

Field E — International Economics

0530. International Economic Relations. Cr. 4.

Prereq: ECO 0102. Factors in international economic relations; patterns of international specialization; balance of international payments; foreign exchange; commercial policy of the United States and other countries; foreign investment and economic development; international economic cooperation. (Former ECO 0537)

0534. International Finance and Investment. Cr. 4.

Prereq: ECO 0101. Current theoretical and empirical knowledge and major policy issues in the field of international finance. Topics include the foreign exchange market; balance of payments adjustment; stabilization policies in open economies; forward exchange; the Eurodollar market; international financial capital movements; international reserves; alternative exchange rate systems. (Former ECO 0538)

0730. Advanced International Trade Theory I. Cr. 4.

Prereq: consent of instructor. The "pure" theory of international trade; classical and modern models of the determinants of international trade and their empirical verification.

Advanced International Trade Theory II. Cr. 4.

Prereq: ECO 0730. Commercial policy: general free trade case; and theory of optimum trade intervention; customs union and flexible protection.

0734. Advanced International Monetary Economics I. Cr. 4.

Prereq: consent of instructor. Foreign exchange market; balance of payments adjustment to income change; devaluation theory; pure gold standard; stabilization policies in open economies; economic growth and the balance of payment.

0735. Advanced International Monetary Economics II. Cr. 4.

Prereq: ECO 0734 or consent of instructor. Forward exchange; international financial capital movements; the Eurodollar market; the confidence and liquidity problems of pegged exchange rate systems; monetary union; flexible exchange rates.

0830. Seminar-Workshop in International Economics.

Cr. 4 (Max. 12).

Prereq: consent of instructor. Selected issues in international economic theory and policy.

Field F — Industrial Organization

0508. Public Control of Business. Cr. 4.

No graduate credit for economics majors. Prereq: ECO 0102. Public policies to improve the social performance of industry. Industry structure and monopoly power; antitrust policies concerning monopoly power, mergers, and pricing; problems and policies in regulating industry.

**0509. (P S 0549) Politics of Economics and Business Regulation.
Cr. 4.**

Prereq: P S 0101; ECO 0102 recommended. Politics of the economic regulation process (pollution, antitrust, and consumer protection laws); interplay between economics and politics; problems of economic regulation through legal rules.

0517. Regulation and Regulated Industries. Cr. 4.

Prereq: ECO 0102. Public regulation of prices, profits, service, and entry in industries such as electrical power, natural gas, telephones, broadcasting, and transportation; the rationale for having public regulation, and the analysis of its economic effects; reform of the scope and practice of regulation; public ownership; regulation of occupational and product safety standards and environmental standards.

0519. Market Power and Economic Welfare. Cr. 4.

Prereq: ECO 0102. Monopoly, oligopoly, and competition in U.S. industry; sources of market power and their effect on prices, profits, and technological progress, as illustrated by such industries as steel, automobiles, petroleum, retailing, or prescription drugs. Selected topics in antitrust policy.

0535. Economics of Transportation. Cr. 4.

Prereq: ECO 0102. Principles of transportation economics. Inter-city transportation; competition among rail, highway, and air transport; the impact of government regulations. Problems of metropolitan transportation systems.

0690. Problems in Public Control of Business. Cr. 4.

Prereq: consent of instructor. Selected problems in governmental control of industrial market power.

0790. Industrial Organization I. Cr. 4.

Prereq: consent of instructor. Theories of competition and imperfect competition. Determinants and measures of market power: concentration; scale economies, product differentiation, and other entry barriers; collusion; mergers; patents. Effects of market power on prices, profits, efficiency, resource allocation, innovation.

0793. Industrial Organization II. Cr. 4.

Prereq: consent of instructor. Economic analysis of antitrust policy and public regulation of industry; monopoly, oligopoly, price-fixing, mergers, price discrimination, patents, and restrictive practices.

0796. Economics of Regulation. Cr. 4.

Prereq: consent of instructor. Rationale for regulation; the mandate and performance of various regulatory agencies. Problems in public utility rate-making: rate structures, inflation, marginal cost pricing. Misallocations induced by regulation; regulation contrasted with antitrust; proposals to deregulate certain industries.

Field G—Labor and Human Resource Economics

0240. Women's Studies II: Women in American Political and Economic Life (P S 0580). Cr. 4.

No graduate credit. Interdisciplinary analysis of current issues affecting women in the United States: political participation, employment and earnings, discrimination, women's contributions to family income; child care; the women's movement; laws and the Equal Rights Amendment.

0541. Labor Problems I (S W 0713). Cr. 4.

Prereq: ECO 0101. Our changing labor force; development, structure, and philosophy of United States unionism; collective bargaining; bargaining power and the role of the strike; substantive union-management issues; public labor policies.

0547. Economics of Aging. Cr. 4.

Prereq: ECO 0102 or consent of instructor. Economics implications of aging and retirements; public policy issues related to aging, including such matters as health care, social security, income maintenance and other welfare problems.

0549. American Labor History (HIS 0543). Cr. 4.

Prereq: ECO 0101 or consent of instructor. Development of the American labor movement; its behavior in the contemporary scene. Labor's experiments with social, political, legal, economic institutions. Comparisons with foreign labor movements.

0584. Economics of Social Welfare (S W 0707). Cr. 4.

Prereq: ECO 0102 or consent of instructor. The economics of social welfare emphasizing the economic hazards facing the individual and the family in modern society; unemployment, disability, discrimination and other sources of poverty. Private and public approaches to solving these problems.

0641. Labor Problems II (S W 0714). Cr. 4.

Prereq: ECO 0102. Labor supply; causes and remedies for unemployment; labor mobility and the operation of labor markets; productivity and real wages; wage determination; human capital, income distribution, and economic development; poverty and its causes; economic impact of collective bargaining.

0741. Labor Economics and Wage Determination. Cr. 4.

Prereq: ECO 0501 and 0503 or consent of instructor. Labor force participation and composition; factors affecting wage levels (money and real) and wage structure; wage criteria, such as productivity, cost of living, ability to pay, wage comparisons; wage-price policy; economic effects of collective wage determination.

0742. Human Resources and Labor Markets. Cr. 4.

Prereq: ECO 0602 and 0620 or consent of instructor. Theoretical and empirical analyses of aggregate labor supply and demand, occupational choice, labor mobility, investment in human capital, income inequality.

0743. Human Resources and Public Policy. Cr. 4.

Prereq: ECO 0602 and 0620 or consent of instructor. Micro models of educational production and macro models which attempt to identify the effects of changes in human capital, discrimination and market imperfection. Evaluation of education, manpower, health and welfare programs.

0841. Seminar in Labor Economics. Cr. 4.

Prereq: ECO 0541 and 0741 or equiv. or consent of instructor. Intensive examination of selected topics involving economic analysis and public policy.

0842. Seminar in Human Resource Economics. Cr. 4.

Prereq: ECO 0742 or consent of instructor. Study and research on selected topics.

Field H—Quantitative Methods

0520. Economic and Business Statistics I. Cr. 4.

No graduate credit for economics majors. Prereq: ECO 0102; MAT 0150 or 0180 or equiv. based on satisfactory score in mathematics placement examination. Introduction to statistical inference; probability, including subjective probability; expected value and variance; sampling distributions and elementary problems of estimation and hypothesis testing.

0521. Economic and Business Statistics II. Cr. 4.

Prereq: ECO 0520 or MAT 0581 or equiv. Modern statistical inference theory applied to problems of index numbers and forecasting, time series, seasonal and cyclical variation; regression and correlation analysis with introduction to multiple regression analysis.

0620. Introduction to Econometrics. Cr. 4.

Prereq: ECO 0503 and 0521 or consent of instructor. Application of statistics and mathematics to the quantitative analysis of the position of and changes in the economy as a whole. Typical problems formulated as testable hypotheses. Models of the economy analyzed. (Former ECO 0574)

0720. Econometrics I. Cr. 4.

Prereq: MAT 0502 or consent of instructor. Probability; distributions; maximum likelihood estimation; hypothesis testing.

0722. Econometrics II. Cr. 4.

Prereq: ECO 0720 or consent of instructor. Asymptotic distribution theory; methods of estimating the linear model; simultaneous equation systems.

0723. Econometrics III. Cr. 4.

Prereq: ECO 0722 or equiv. Autocorrelation, heteroscedasticity, Koyck and Almon distributed lag models, specification analysis, testing the equality of sets of coefficients, dummy variables, pooling of time series and cross-section data, error in variable models, mixed estimation, random coefficient models, missing observations, grouping of data.

0822. Seminar in Statistics and Econometrics. Cr. 4.

Prereq: consent of instructor. Topics in current developments. Emphasis on individual research.

Field I—Urban and Regional Economics

0200. (U S 0200) Introduction to Urban Studies (GEG 0203) (HIS 0200) (P S 0200). Cr. 4.

Prereq: sophomore standing. Urban phenomena, past and

including the quality and nature of urban life; major concerns of urban areas; perspectives and techniques of various urban-related disciplines. Topics to be announced in *Schedule of Classes*.

0586. Urban and Regional Economics I (U P 0582). Cr. 4.

Prereq: ECO 0101 and 0102 or consent of instructor. Introduction to the economic foundations of urban problems; land use, housing, poverty, transportation, local public finance; regional industry mix, income, growth and development; the national system of cities and location of firms.

0587. Urban and Regional Economics II (U P 0592). Cr. 4.

Prereq: ECO 0586. Seminar in selected topics in regional economic development, urban problems and public policy.

0592. Environmental Economics. Cr. 4.

Prereq: ECO 0101 and 0102. Economic and ecological aspects of principal pollution problems; U.S. and global perspectives; environmental legislation. Cost-benefit analysis applied to pollution abatement. Economic theory of externalities, commons, public goods and optimum use of fixed national resources.

0786. Location, Space and Region. Cr. 4.

Prereq: consent of instructor. Economics of location and space; emphasis on spatial competition, evolution of regional hierarchies, linkages between regions. Techniques of regional analysis: base theory, local multipliers, input-output, gravity models, and econometric models.

0787. Urban Economics. Cr. 4.

Prereq: consent of instructor. Models of urban land use, transportation, housing, poverty, and local public finance. Analysis of empirical studies of urban problems and topics in applied urban analysis: small area forecasting, factor analysis, spatial autocorrelation.

0788. Seminar in Urban and Regional Policy Analysis. Cr. 4.

Prereq: consent of instructor. Selected issues in urban-regional economics with emphasis on interdependencies in the urban economy; the relationships among regional development, urban form, and urban economic problems.

**0886. Workshop in Quantitative Urban Economics.
(2,4). Cr. 4 (Max. 12).**

Prereq: ECO 0722 and consent of instructor; graduate standing in economics. Application of quantitative methods in urban economic research. Student participation in model building, estimation and testing.

Directed Readings, Thesis Direction, and Special Courses

0390. Directed Study. Cr. 2-4 (Max. 8).

Open to seniors having not less than twelve credits in economics of grade A or B. For the student who shows evidence of ability and interest in economic study and who desires opportunity for advanced reading in a special field. Arrange with adviser.

***50. Professional Practice in Economics. Cr. 1 (Max. 6).**

Prereq: junior or senior standing and consent of co-op coordinator. Open only to students in Economics Co-op program, offered in U grades only. Review of practical experiences in economics as a result of participation in the Economics Co-op program of work-study.

0496. Research in Economics. Cr. 4-16 (Max. 16).

Prereq: approval of department prior to registration. Open to seniors having not less than twelve credits in economics with grade A or B. Economic research on an appropriate topic of the student's choice, conducted under faculty supervision.

0498. Senior Honors Seminar. Cr. 4 (12 required).

Prereq: economics honors program, senior standing, major in economics. Must be elected three successive quarters. Research methodology, reading and discussion in areas selected by the seminar instructor. A senior honors essay.

0795. Research in Economics. Cr. 2-12 (Max. 24).

Prereq: consent of adviser. Open to qualified graduate students who desire opportunity for research and directed study. May be conducted as seminar.

0799. Master's Essay Direction. Cr. 3-4.

Prereq: consent of adviser.

**0899. Master's Thesis Research and Direction. Cr. 2-12
(12 required).**

Prereq: consent of adviser.

0997. Doctoral Research Seminar. Cr. 1.

Prereq: consent of doctoral adviser. Evaluations of proposed and current economic research.

0999. Doctoral Dissertation and Research.

Credits to be arranged. Prereq: consent of doctoral adviser.

ENGLISH

Office: 431 State Hall

Chairman: Edward Sharples

Associate Chairman: John E. Bassett

Academic Services Officer: Pearl Warn

PROFESSORS

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John E. Bassett, Charles M. Baxter, Michael J. Bell, Ellen R. Brown, Colin S. Cass, Stephen T. Chennault, Bernyce Cleveland (Emeritus), Alice T. Crathern (Emeritus), Todd Duncan, Bradford S. Field, John C. Franzosa, Jone R. Goldstein, Henry L. Golemba, Joseph A. Gomez, John A. Gutowski, Ronald L. Harris, Josephine N. Keal (Emeritus), Terrance J. King, Daniel W. Minock, Jonathan I. Morse, Peter J. Nagourney, Alan M. Perlman, John A. Ruhlman, Michael H. Scrivener, Elizabeth S. Sklar, Russell E. Smith (Emeritus), Peter J. Stine, Robert M. Strozier II, Leonard W. Tennenhouse, Robert T. Teske, Joel J. Thomas, Dennis F. Todd, Renata M. Wasserman, Thomas Wayman, Roy L. Weitzel, Robert B. Winans, Gregory R. Zeck, Jacqueline L. Zeff

INSTRUCTORS

Mark A. Buckholz, Chris M. Cardaris, Alice A. Horning, Douglas P. Kevorkian, Dante J. Lanzetta, Jr., Donald E. Levin, Joseph W. Lewis, Al McNeil, Norma Merry, Barbara J. Reetz, Ralph D. Story, Anca Vlasopolos, Robert D. Wallin

ASSOCIATE PROFESSORS — WRITERS IN RESIDENCE

Samuel Astrachan (Visiting), Esther M. Broner

DEGREE PROGRAMS

Bachelor of Arts — with a major in English

Master of Arts — with a major in English

Master of Arts in Comparative Literature

*Master of Arts in Teaching English at the
Community College Level*

*Doctor of Philosophy — with a major in English and
specializations in American literature, English literature,
literary criticism, and composition*

Courses at the 0100 level concentrate on composition. Courses at the 0200 level offer all students acquaintance with literature or language with emphasis on study of subjects of general interest; a composition program at this level is available for further experience with creative and expository writing. Courses numbered 0300-0699 (open as electives to all juniors and seniors) and courses numbered 0500-0999 (open to graduate students) offer more advanced study in language, literature and composition.

Students for whom English is a foreign language are advised on the basis of their competence to English 0070, 0130, or 0150.

BACHELOR OF ARTS

The various programs for English majors furnish both a liberal education and fundamental training for careers. These programs prepare for careers in writing and publishing, governmental service at home and abroad, executive and secretarial work in business and industry; they prepare for training in such professions as teaching, medicine, religion, and law, and for graduate study in English and related fields.

Major Programs — The undergraduate major in English must elect a minimum of eleven courses (forty-four credits) in English beyond the English Group Requirement. These eleven courses must be numbered at the 0300 level or above, with the exception of English 0210 and 0240, and must include English 0302 and 0303. Additional courses may be elected within the college maximum of sixty-eight credits in a major. (The sixty-eight credits include the eight-credit English Group Requirement.) The department publishes a brochure with suggested programs and other information on the major.

The department recommends that the non-vocational major take courses from several of the categories listed in its offerings. In that way the student can explore varieties of content, techniques, and genres.

The department provides advising both to English majors, through the Majors Advising Committee, and to non-majors, through the English Electives Advising Committee. As soon as possible and no later than the end of his sixth quarter, the prospective major should consult the chairman of the English Majors Committee to discuss his course of study.

The English Honors Program is designed for the student who can profitably undertake a program of independent study under the direction of an honors adviser. To be eligible for the Honors Program, a student must be able to write English clearly and effectively and should have an honor point average of at least 3.2. Ordinarily the student will enter this program at the beginning of his junior year.

English majors are not exempt from the Junior Proficiency Examination in Composition.

Honors Program Requirements

The English major who is admitted to the Honors Program works largely through independent study toward a command of English and American language and literature. His independent study is supervised through the course for honors majors, English 0490, in which he may receive as many as thirty-six credits. His progress in course work and independent reading is monitored through informal periodic reviews. Two additional courses, as recommended by the adviser, at the 0300 through 0600 level are required. In his senior year, the honors major must submit a twenty-to-thirty page honors essay. The College also requires the completion of one 0400-level interdisciplinary senior honors seminar. Interested students should consult a member of the English Honors Committee.

Combined Curriculum Requirements

Combined Curriculum for Secondary Teaching — An English major who wishes to prepare for a career in secondary school teaching must complete one of the English programs described above. His program must also include a course in expository writing, either English 0209 or 0515 and a course in language study, English 0522. Information regarding this curriculum is on page 239.

Combined Degree with Dentistry or Law — Students who wish to major in English and receive the Bachelor of Arts degree at the end of their first year of study in dentistry or law are asked to complete six courses (twenty-four credits) in English at the 0300 level or above, beyond the English Group Requirement.

MASTER OF ARTS

Plan A — Thirty-six credits in course work plus a thesis.

Plan B — Forty-four credits in course work plus an essay.

Admission — Students who wish to register as graduate majors in English should consult the departmental M.A. adviser, but submit their formal application to the Graduate Admissions Office in the Administrative Services Building. If the applicant does not have an undergraduate major or a strong minor in English and some coverage of the major periods of English and American literature, he will be asked to take courses as prerequisites before receiving credits toward the M.A. The Aptitude and Advanced Sections of the Graduate Record Examination are recommended for all applicants prior to admission.

Degree Requirements — The student's graduate program could be planned to supplement his undergraduate preparation so that he will have a reasonably complete survey of English and American literature. Outside of this general intent, each student's program can be individually tail-

ored to suit his particular interests and needs. It must include, however, English 0701, one two-quarter 0700-level seminar, at least two 0600-level studies courses, and the thesis or essay. The rest of the courses may be at the 0500, 0600, or 0700 level. With the consent of the departmental M.A. adviser the student may submit a work of imaginative writing as a thesis or essay.

The time limit for the completion of the degree is six calendar years from the date the first course marks in the program are recorded. On petition of the student and approval of the Graduate Committee, over-age credits may be revalidated.

Applicants for the degree must pass an examination in one foreign language — French, German, Greek, Italian, Latin, Russian, or Spanish.

Master of Arts in Comparative Literature

See page 281.

Master of Arts in Teaching English at the Community College Level

Plan B — Forty-four credits in course work plus an essay.

Admission — Students who wish to enter the Master of Arts program in teaching English at the community college level should consult the program adviser. Whenever possible, candidates will be interviewed before admission to the program.

Degree Requirements — This program prepares English teachers for situations and students unique to the two-year college. Work will be given in theory and field experience; students will have close contact with metropolitan community colleges and teachers. Candidates will study literature and language, theory of instruction, and will teach in area community colleges.

The student must elect twenty-four credits in language and literature courses (including English 0799) at or above the 0500 level. Required courses include English 0787 (eight credits) and 0788 (eight credits). The department requires a cognate of eight credits in course work on the graduate level in a related area outside the department.

The foreign language requirement may be met by passing an examination in one foreign language or by election of eight credits in English language courses.

DOCTOR OF PHILOSOPHY

Admission to the doctoral program in English is open to students of superior scholarship. The M.A. is the usual prerequisite to acceptance as a doctoral applicant.

Application credentials should be filed in the Graduate Division not less than three, and preferably five, months before

the applicant plans to register for doctoral work. The applicant must also address a letter to the Chairman of the Departmental Committee on Graduate Admissions indicating his educational history, experience, financial resources, family responsibilities, interests, reading, aptitudes, and other matters which will enable the committee to evaluate his ability and qualifications. Supplementary information, such as Graduate Record Examination scores and samples of the student's scholarly or critical writing, is welcome.

Four letters of recommendation are required; forms indicating the kind of information desired may be obtained from the Chairman of the Departmental Committee on Graduate Admissions.

The foreign language requirement may be met in three ways: (1) by passing an in-depth examination in one language (usually French or German); (2) by passing examinations in two languages (usually French and German); (3) by passing an examination in one language and taking two courses in Anglo-Saxon.

The student must select his specialization before preparing his *Plan of Work*. The department does not require specific courses, with the exception of English 0701, but it does require that all courses offered for the doctorate be numbered 0600 or above, although certain exceptions may be approved by the departmental doctoral adviser with the permission of the Graduate Division.

The department requires a minor of twelve credits in course work on the graduate level in a related area outside the department.

A written Preliminary Qualifying Examination must be taken by the end of the first quarter following the M.A. or after forty-eight credits of graduate work, whichever comes first. A student entering the doctoral program with an M.A. from another university must take this examination by the end of his second quarter of course work.

After he has passed the Preliminary Qualifying Examination, the student recruits an advisory committee to assist him in planning a program of study covering both formal course work and independent reading in preparation for an individually-tailored Final Qualifying Examination and dissertation.

The Final Qualifying Examination, which must be taken within one calendar year after the completion of all course work, consists of:

1. A written examination covering areas agreed upon by the student and his committee.
2. An oral examination on the subject area of the student's proposed dissertation, to be given after he has passed the written examination.

A final oral presentation, after the dissertation has been completed, is also required. For a description of this, see page 26.

ASSISTANTSHIPS

A number of departmental teaching assistantships are available to doctoral students and to M.A. students who intend

to pursue doctoral studies. Inquiries and applications should be addressed to the chairman of the department.

TOMPKINS AWARDS

The Tompkins Awards, named for Frank G. Tompkins, first Professor of English in the University, are made annually to students submitting the best original, unpublished stories, plays, essays, or groups of poems.

COURSES OF INSTRUCTION¹ (ENG)

Freshman English Courses

0070. Program in English as a Second Language. Cr. 0.

English language training for speakers of other languages; nine hours weekly. Instruction at all levels: beginning, intermediate, advanced.

0130. Composition Seminar. Cr. 4.

Offered for S and U grades only; does not count toward fulfillment of English Group Requirement. Expository writing. Recommended for students needing instruction and practice in composition prior to election of English 0150.

0150. Freshman Composition. Cr. 4 (Max. 8).

Instruction and practice in composition.

0197. Freshman Honors: English I. Cr. 4.

Open only to students in Liberal Arts Honors Program. Freshman seminar in fiction, poetry and drama for Liberal Arts Honors students.

0297. Freshman Honors: English II. Cr. 4.

Open only to students in Liberal Arts Honors Program. Continuation of English 0197.

Introductions, Surveys, and Techniques

English 0150 is prerequisite to all higher-numbered English courses. The Liberal Arts requirement is 0150 and an 0200-level course. In addition to this minimal requirement any 0200-level literature course may be used in fulfillment of the College humanities requirement.

0208. Writing Workshop. Cr. 2 (Max. 12).

Prereq: ENG 0150 or equiv. Open only to students who fail the English Proficiency Examination. Credit earned when student can meet standards of English Proficiency Examination. Offered for S and U grades only. Intensive writing, revising and drill. Takes place in classroom or workshop setting, as assigned by director. Credit given when student demonstrates he or she can meet standards of proficiency examination. Individual attention combined with group work.

0209. Techniques of Expository Writing. Cr. 4.

The writing of brief formal and informal essays. Emphasis on clarity, logical organization, effective diction, and individual style.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

0210. Techniques of Imaginative Writing. Cr. 4.
Various forms of creative writing. Frequent individual conferences.

0220. Introduction to Contemporary English: Usage and Meaning. Cr. 4.

0221. Language: Acquisition and Application. Cr. 4.
Practical studies of language learning by children and adults; language use in such areas as reading and social interaction; may deal with animal language, language history and change, sounds and word formation.

0225. Major Authors in World Literature: Classical and Medieval. Cr. 4.

0226. Major Authors in World Literature: Renaissance and Romantic. Cr. 4.

0227. Major Authors in World Literature: Twentieth Century. Cr. 4.

0228. Introduction to Folklore. Cr. 4.

0231. Introduction to Poetry. Cr. 4.

0232. Introduction to Fiction. Cr. 4.

0233. Introduction to Drama. Cr. 4.

0234. The English Bible as Literature. Cr. 4.

0240. Shakespeare. Cr. 4.

0270. Great American Books to 1900. Cr. 4.

0271. Major Authors in American Literature of the Twentieth Century. Cr. 4.

0273. Introduction to Canadian Literature. Cr. 4.
Representative sample of Canadian fiction and poetry.

0275. Introduction to Afro-American Literature. Cr. 4.
Emphasis on literature of the twentieth century.

0277. Introduction to Women's Studies Through Literature. Cr. 4.

0280. Modern Poetry. Cr. 4.
Readings of British and American poems.

0281. Modern Drama. Cr. 4.
Works by twentieth century international dramatists.

0285. Modern Novel. Cr. 4.
Twentieth century British, or twentieth century British and European novels.

Methods and Approaches for the Study of Literature

12. Representative Authors in English Literature to 1700. Cr. 4.
Summary of English literature from the Middle Ages through Restoration with selected works from Chaucer, Spenser, Beowulf, Donne and Milton. Required of English majors.

0303. Representative Authors in English Literature from 1700-1900. Cr. 4.

Survey of English literature of the eighteenth and nineteenth centuries; selected works from: Swift, Pope, Wordsworth, Dickens, Tennyson and Hardy. Required of English majors.

0305. Introduction to Literary Criticism. Cr. 4.

Approaches to the systematic study of literary works and problems: biographical, bibliographical, historical, structural, linguistic, psychological, sociological.

0330. Approaches to Comparative Literature. Cr. 4.

Prereq: knowledge of a foreign language at the intermediate level. Problems in a comparative approach to works in different languages: styles, literary movements, influences, traditions.

0360. Topics in Folklore. Cr. 4 (Max. 16).

Consideration of a common theme or source of folklore. Ethnic or social focus, such as: Afro-American folklore, Polish and Polish-American folklore, folklore of and about women. Topics to be announced in *Schedule of Classes*.

Intermediate Writing

0309. Intermediate Expository Writing. Cr. 3-4 (Max. 8).

Instruction and practice in writing essays. Emphasis on a particular subject, approach, technique or writing problem. Topics to be announced in *Schedule of Classes* will include: Technical Report Writing for Engineers I and II; research papers, personal essay.

0311. Apprentice Poetry Writing. Cr. 4.

0312. Apprentice Fiction Writing. Cr. 4.

0316. Apprentice Play Writing. Cr. 4.

Topics to be announced in *Schedule of Classes*.

Individual Authors

0340. English Authors. Cr. 4 (Max. 16).

Chief works of a major or minor author and his influence on literary tradition. Literary virtues, limitations, and historical context. Topics to be announced in *Schedule of Classes*. Sample topics: Chaucer, Milton, Keats, Shelly and Woolf.

0370. American Authors. Cr. 4 (Max. 16).

Study in depth of the chief works of a major or minor author and his influence on literary tradition. Literary virtues, limitations, and historical context. Topics to be announced in *Schedule of Classes*. Sample topics: Poe, Emerson, Wright, Faulkner, Oates.

Major Themes and Techniques in Literature

0375. Popular Culture. Cr. 4 (Max. 16).

Media, forms, phenomena and themes treated within historical, cultural and literary contexts. Topics to be announced in *Schedule of Classes*.

0377. Women's Studies I: Women's Lives (HIS 0377). Cr. 4 (Max. 8).

Autobiographical and biographical materials to gain an understanding of individual women's lives within a cultural milieu.

0380. Major Themes and Techniques in World Literature.
Cr. 4 (Max. 16).

Illustration of common origins of literary expression. May be offered with ethnic focus, such as Asian classics. Topics to be announced in *Schedule of Classes*.

0385. Major Themes and Techniques in English and American Literature. Cr. 4 (Max. 16).

May be offered with ethnic focus, such as Anglo-Irish literature. Topics to be announced in *Schedule of Classes*.

0389. Literature, Language, and Labor. Cr. 4 (Max. 16).

Imaginative literature about labor in historical and cultural contexts: fiction, poetry, work songs, folk materials, autobiographies, the work experience of women and ethnic groups in the preceding forms.

Language

0320. Introduction to English Linguistics. (3,0). Cr. 4.

Basic concepts and methods of modern linguistics; their application to the study of the English language.

0520. Historical Development of Language. Cr. 4 (Max. 16).

Historical method applied to the study of the English language. General continuity, limited periods, or topics such as dialect, semantics, phonology, lexicology, grammar. Topics to be announced in *Schedule of Classes*.

0522. Contemporary Development of Language. Cr. 4 (Max. 16).

Objective analysis of contemporary American English. Syntax, phonology, morphemics, semantics. Structural, transformational, tagmemic or stratificational approaches. Topics to be announced in *Schedule of Classes*.

Literary Genres

0430. Poetry as a Literary Genre. Cr. 4 (Max. 16).

Poetry in generic and historical contexts, such as Elizabethan sonnets and songs; the imagist movement and early twentieth-century poetry; lyric poetry. Topics to be announced in *Schedule of Classes*.

0440. Prose Fiction as a Literary Genre. Cr. 4 (Max. 16).

Prose fiction in generic and historical contexts, such as the picaresque novel; novel form in the romantic period; the twentieth-century novella. Topics to be announced in *Schedule of Classes*.

0450. Intellectual Prose as a Literary Genre. Cr. 4 (Max. 16).

Non-fictional prose in generic and historical contexts, including essays, autobiographies, philosophical texts. Topics to be announced in *Schedule of Classes*.

0460. Drama as a Literary Genre. Cr. 4 (Max. 16).

Drama in generic and historical contexts, including Restoration drama; Theatre of the Absurd; heroic tragedy; English drama — Medieval to Restoration. Topics to be announced in *Schedule of Classes*.

0465. Genres in Folklore. Cr. 4 (Max. 16).

Specific folklore genres treated within historical and cultural contexts. May be offered as, myth, legend, folktale, proverb, riddle, folk belief, custom, ritual, folk drama, folksong and ballad or other folklore forms.

0475. History and Development of Afro-American Literature.
Cr. 4 (Max. 8).

Range of Afro-American literature: poetry, drama, fiction, autobiography, and criticism from the beginning to the present. Topics: I, Early Period from Wheatley to Douglass; II, 1865 to the Present; as listed in *Schedule of Classes*.

Advanced Techniques of Expository and Imaginative Writing

0511. Poetry Writing Workshop. Cr. 4 (Max. 8).

Structure of English poetic forms; nature of rhythm, stanza forms, free verse, melody, imagery, metaphor.

0512. Fiction Writing Workshop. Cr. 4 (Max. 8).

Intermediate course in the writing of fiction, conducted on a seminar basis; discussion and criticism of fiction written by students in the course. Reading assignments made on an individual basis. Frequent individual conferences.

0515. Advanced Expository Writing. Cr. 4 (Max. 8).

Prereq: ENG 0209 or consent of instructor. Writing of articles, reviews, and personal essays. The course demands more fully developed and extended papers than does English 0209. It also encourages the student to develop his own topics for composition.

0516. Writing for Theater, Film and Television (SPH 0585).
Cr. 4 (Max. 8).

Prereq: ENG 0316 or consent of instructor. Comparative study in structure of stage, radio, and television plays, motion picture scenarios. Practice in writing either an original script or an essay on some phase of contemporary dramatic form. Actual production of some scripts in experimental theatre and radio studios of Department of Speech.

0517. Expository Writing for Graduate Students. Cr. 4.

Expository writing directed to goals of graduate students in specific disciplines. Topics to be announced in *Schedule of Classes*

Periods in Literary History

0506. History of Literary Criticism. Cr. 4 (Max. 8).

Development of literary criticism from its origins to the present. Topics to be announced in *Schedule of Classes*.

0571. Periods of American Literature. Cr. 4 (Max. 16).

Historical approach to the development of American literature; how writers work with the aesthetics and ideas of their age. Topics such as American Romanticism, American Realism, Modern American Literature will be announced in *Schedule of Classes*.

0581. Periods of English Literature. Cr. 4 (Max. 16).

Historical approach to the development of English literature; how writers work with the aesthetics and ideas of their age. Topics such as Renaissance, Eighteenth Century, Modern Literature will be announced in *Schedule of Classes*.

Special Arrangements

0299. Sophomore Honors Colloquium. Cr. 4.

Prereq: ENG 0150 or equiv.; consent of director of Liberal

Honors Program. Literary theme, figure, or genre with individualized study. Topics to be announced in *Schedule of Classes*.

0485. Senior Colloquium. Cr. 4.

Literary problems, themes or movements. Topics to be announced in *Schedule of Classes*.

0490. Directed Study: Honors Program. Cr. 4-8 (Max. 36).

Prereq: consent of instructor or English Honors Committee.

0502. Topics in English. Cr. 2-4 (Max. 16).

Open only to juniors, seniors, M.A. candidates. Specialized, limited studies in composition, literature, or language. Topics to be announced in *Schedule of Classes*.

0590. Directed Study. Cr. 1-4 (Max. 8).

Undergrad. prereq: 3.0 h.p.a.; written proposal submitted to chairman in quarter preceding proposed study, accompanied by supporting statement from instructor; consent of chairman. Grad. prereq: consent of adviser and graduate officer. Advanced work for superior students whose program cannot be adequately met by scheduled classes. Course requires substantial written work.

Studies and Seminars

Senior standing is prerequisite to all 0600 English courses except English 0610.

0605. Studies in Criticism. Cr. 4 (Max. 8).

Close reading of a few major critics, criticism of a literary period, or development of a critical issue, problem, or school. Topics to be announced in *Schedule of Classes*.

0610. Advanced Creative Writing. Cr. 4 (Max. 8).

Prereq: pronounced ability established by presentation of manuscripts to instructor. Writing in any of the creative forms. Work by students presented in seminar meetings; individual conferences.

0618. Topics in British and American Literature. Cr. 2-4 (Max. 8).

Generic, historical, or thematic perspectives. Topics to be announced in *Schedule of Classes*.

0621. Introduction to Old English. Cr. 4.

The fundamentals of language and grammar and the literary analysis of Old English texts.

0622. Old English Literature. Cr. 4 (Max. 8).

Prereq: ENG 0621 or consent of instructor. Selected readings. Topics to be announced in *Schedule of Classes*.

0623. Studies in Modern English. Cr. 4.

Advanced structural theories and analyses.

0628. Studies in Folklore (ANT 0608). Cr. 4 (Max. 8).

Prereq: ENG 0228 or 0360 or 0465 or ANT 0210 or consent of instructor. Use of folklore in literature; fieldwork; analysis of collected oral literature; study of separate genres of oral literature and analysis of parallel texts. Topics to be announced in *Schedule of Classes*.

0630. Studies in Comparative Literature and Literary Techniques. Cr. 4 (Max. 8).

The application of techniques such as structural design, point of

view, variation of style, to the solution of a selected literary problem. Topics to be announced in *Schedule of Classes*.

0631. Problems in Translation. Cr. 4.

Translation: methods and theories, detailed analysis of distinguished literary translations, and student practice. Required of all students in the Comparative Literature Program. Topics to be announced in *Schedule of Classes*.

0635. Studies in Medieval Literature. Cr. 4 (Max. 8).

Chaucer, with a concentration on *The Canterbury Tales* or *Troilus and Criseyde* and the minor poems; or other medieval authors such as the Pearl Poet and Malory; or topics such as metrical romance, the lyric, and drama. Topics to be announced in *Schedule of Classes*.

0640. Studies in Shakespeare. Cr. 4.

One or more plays examined closely as to text, source, background, interpretation. Topics to be announced in *Schedule of Classes*.

0642. Studies in Renaissance Writers. Cr. 4 (Max. 8).

Elizabethan-Jacobean dramatists, such as Marlowe and Jonson; or sixteenth-century poets, such as Sidney and Spenser; or Tudor prose writers and their successors, such as More, Puttenham, Nashe, and Lyly. Topics to be announced in *Schedule of Classes*.

0645. Studies in Seventeenth Century Writers. Cr. 4 (Max. 8).

Milton the subject once a year. Other subjects such as Donne and metaphysical tradition, Jonson and rise of neoclassicism, Bacon and prose of the period, offered from time to time. Topics to be announced in *Schedule of Classes*.

0650. Studies in Restoration and Eighteenth Century Literature. Cr. 4 (Max. 8).

One or two important figures, a genre, or an area in the history of ideas. Will include such offerings as Pope and Swift; James Thomson and the Cult of Sensibility; Johnson and his circle; Restoration and eighteenth century drama. Topics to be announced in *Schedule of Classes*.

0655. Studies in Romantic Writers. Cr. 4 (Max. 8).

One or two writers, such as Blake, Wordsworth, Coleridge, Shelley, Keats, Byron; their relationship to each other and to the critical, literary, and cultural background of their age. Topics to be announced in *Schedule of Classes*.

0660. Studies in Victorian Writers. Cr. 4 (Max. 8).

Selected studies in novelists, Scott to Hardy; poets, Tennyson to Yeats; or expository prose writers, Carlyle to Pater. Topics to be announced in *Schedule of Classes*.

0670. Studies in American Literature to 1830. Cr. 4 (Max. 8).

One or two selected writers, themes or movements of the period. Franklin Cooper, Puritanism. Topics to be announced in *Schedule of Classes*.

0672. Studies in American Literature, 1830-1865. Cr. 4 (Max. 8).

One or two selected writers, themes or movements of the period. Thoreau, Melville, Hawthorne, Whitman, the Transcendentalists. Topics to be announced in *Schedule of Classes*.

0674. Studies in American Literature, 1865-1914. Cr. 4 (Max. 8).

One or two selected writers, themes or movements of the period. Dickinson, Twain, James, the local colorists. Topics to be announced in *Schedule of Classes*.

0676. Studies in American Literature Since 1914. Cr. 4 (Max. 8).
One or two selected writers, themes or movements of the period. Frost, Hemingway, Faulkner, the lost generation. Topics to be announced in *Schedule of Classes*.

0680. Studies in Twentieth Century English Literature. Cr. 4 (Max. 8).

Offered at least once a year as "James Joyce." Topics to be announced in *Schedule of Classes*.

0687. Supervised Teaching for Graduate Assistants I. Cr. 1.

Prereq: graduate assistant status in English. Seminar in problems of teaching freshman English and supervision of classroom teaching.

0688. Supervised Teaching for Graduate Assistants II. Cr. 1.

Prereq: ENG 0687. Seminar in problems of teaching English 0150 and supervision of classroom teaching.

0700. Omnibus. Cr. 4 (Max. 12).

Prereq: ENG 0701 and consent of instructor. Specific themes or subjects in English, American or comparative literature. Topics to be announced in *Schedule of Classes*.

0701. Bibliography and Methods for English Majors. Cr. 4.

Required for 0700 level English seminars. Variety of individual projects on library reference tools. Techniques of scholarly writing, descriptive bibliography and documentation.

0702. Textual Studies. Cr. 4.

Prereq: ENG 0701. Application of the methods of analytical and descriptive bibliography to problems in literature, including editing.

†0705. Literary Criticism. Cr. 4 or 8 (8 required).

Prereq: ENG 0701. Analysis of critical texts and ideas in specific writers and periods. Required of M.A. candidates in Comparative Literature when offered as "Literary Theory and the Comparative Study of Literature." Topics to be announced in *Schedule of Classes*.

0711. Topics in British Literature. Cr. 4 or 8 (8 required).

Prereq: ENG 0701. British literature from specific perspectives such as generic, historical, or thematic. Topics to be announced in *Schedule of Classes*.

0718. Topics in British and American Literature. Cr. 4 or 8 (8 required).

Prereq: ENG 0701. Generic, historical or thematic perspectives. Topics to be announced in *Schedule of Classes*.

0721. Seminar in Old English Poetry. Cr. 4.

Prereq: ENG 0621 and 0701. Selected poems. Topics to be announced in *Schedule of Classes*.

0723. Modern English Linguistics. Cr. 4 or 8 (8 required).

Prereq: ENG 0701. Application of linguistic theory to modern English and to composition. Topics to be announced in *Schedule of Classes*.

0728. Seminar in Folklore. Cr. 4.

Prereq: ENG 0228 or 0360 or 0465 or 0628; and 0701, or consent of instructor. Folklore theory and techniques applied to the study of oral and written literature. Topics to be announced in *Schedule of Classes*.

†0735. Middle English Language and Literature. Cr. 4 or 8 (8 required).

Prereq: ENG 0701. First quarter devoted to period c. 1150 - c. 1450. Second quarter devoted to a special area, such as Arthurian legend, fourteenth century alliterative revival, problems of Chaucer criticisms. Topics to be announced in *Schedule of Classes*.

†0740. Shakespeare. Cr. 4 or 8 (8 required).

Prereq: ENG 0701. Problems in current scholarship and criticism. Topics to be announced in *Schedule of Classes*.

†0742. Early Renaissance. Cr. 4 or 8 (8 required).

Prereq: ENG 0701. English writers of the sixteenth century in relation to Renaissance development in Italy and France. Topics to be announced in *Schedule of Classes*.

†0745. Seventeenth Century Literature. Cr. 4 or 8 (8 required).

Prereq: ENG 0701. English writers, chiefly of the period 1598-1660. Topics to be announced in *Schedule of Classes*.

†0751. Eighteenth Century Literature. Cr. 4 or 8 (8 required).

Prereq: ENG 0701. Special studies, with emphasis on the history of ideas. Topics to be announced in *Schedule of Classes*.

†0755. Late Eighteenth and Early Nineteenth Century Literature. Cr. 4 or 8 (8 required).

Prereq: ENG 0701. The Romantic period, including foreign backgrounds and parallels. Topics to be announced in *Schedule of Classes*.

†0760. Victorian Literature. Cr. 4 or 8 (8 required).

Prereq: ENG 0701. Poetry, non-fictional prose, drama. Topics to be announced in *Schedule of Classes*.

†0770. Early American Literature. Cr. 4 or 8 (8 required).

Prereq: ENG 0701. From the beginnings through Emerson. Usually a concentration on a few writers. Topics to be announced in *Schedule of Classes*.

†0772. Later American Literature. Cr. 4 or 8 (8 required).

Prereq: ENG 0701. From Emerson to the present. Usually a concentration on a few writers. Topics to be announced in *Schedule of Classes*.

†0774. Topics in American Literature. Cr. 4 or 8 (8 required).

Prereq: ENG 0701. Specific subjects in American literature such as oriental influences, American literary humor, naturalism or the Gothic. Topics to be announced in *Schedule of Classes*.

†0780. Twentieth Century Literature. Cr. 4 or 8 (8 required).

Prereq: ENG 0701. Problems in American or British literature. Topics to be announced in *Schedule of Classes*.

0787. Teaching English in Community College. Cr. 4 or 8 (8 required).

Problems in community college teaching of literature, composition, and developmental reading.

0788. Internship and Seminar in Community College Teaching. Cr. 8.

Prereq: consent of adviser. Offered for S and U grades only. Supervised internship in area community college and seminar in related problems.

0790. Directed Study. Cr. 1-12 (Max. 12).

Prereq: consent of adviser and graduate officer. Advanced work

for superior English majors whose program of study cannot be adequately met by scheduled classes.

0793. Workshop. Cr. 4.

Prereq: ENG 0701 and consent of instructor. Combination independent directed study and seminar instruction on topics within a restricted area of interest. Topics to be announced in *Schedule of Classes*.

0799. Master's Essay Direction. Cr. 4.

Prereq: consent of adviser.

0899. Master's Thesis Research and Direction. Cr. 1-12 (12 required).

Prereq: consent of adviser.

0999. Doctoral Dissertation Research and Direction.

Credits to be arranged. Prereq: consent of doctoral adviser.

Institute Courses

0050. Institute in English as a Foreign Language. Cr. 0.

Prereq: academic qualifications for an American college or university, or professional qualifications for entry into professional work. Intensive English language training for speakers of other languages.

0060. Developmental English. Cr. 0.

Prereq: consent of adviser; coreq: one credit course. Open only to Project 350 students. Pre-freshmen writing skills.

0600. English Institute: Specially Funded Institute on Literature and Language. Cr. 4 or 8.

May be elected without credit or for post-degree or graduate credit. Prereq: bachelor's degree with a concentration in English. Open to teachers of English and related subjects.

0602. English Institute for Teachers of Language and Literature. Cr. 4 (Max. 16).

Prereq: bachelor's degree with concentration in English. For prospective and in-service teachers. Topics to be announced in *Schedule of Classes*.

ENVIRONMENTAL STUDIES

Office: 201 Mackenzie Hall

Director: Rodabe Bharucha-Reid

CURRICULUM AND CO-MAJOR

The Program in Environmental Studies is an undergraduate and post-degree course of interdisciplinary studies which leads to a bachelor's degree with a co-major designation. The Program is university-wide but is housed in the College of Liberal Arts. The co-major may be combined with the student's major in a number of cooperating colleges.

Undergraduate training offered by the Program in Environmental Studies serves two related purposes. (1) The program allows a student to examine the person-environment relationship as a multifaceted system in which the psycho-sociological, physical, biological and legal perspectives are included. (2) The training will combine and emphasize skills and techniques for investigating the environment by the program's requirements of a methodological course and credit internships with industry or governmental agencies.

Transcript Notation — Fulfillment of the core requirement and electives (total of forty-four credits), plus a course in methodology is necessary for a transcript notation and a special certificate.

Admission — The student must have met the entrance requirements of the University and their college to apply for this program. A Declaration of Major form should be acquired and a major authorized in the junior year before formal admission into the program is allowed. However, first and second year students will be advised to take electives before the junior year whenever possible. The required honor point average is that for the major or a C-plus average, whichever is higher.

Requirements — Students must take a core program of three seminars (12 credits) and eight elective courses (32 credits) approved by the director of the Environmental Studies Program. These courses should be selected from a list of approved environmental electives, and academically balance the student's major. In addition, an approved course in methodology is required. Core requirements and electives of the Environmental co-major may count towards satisfying group requirements or departmental majors.

Core Requirements

	<i>credits</i>
I E 0595 (ENV 0595)	4
PSY 0499 (ENV 0499)	4
P S 0594 (ENV 0594)	4

COURSES OF INSTRUCTION (ENV)¹

0499. Special Topics in Environmental Studies. Cr. 4.
Prereq: ENV 0595. Topics of current environmental interest such as environmental psychology.

0594. (P S 0594) Field and Experimental Studies of the Environment. Cr. 4.

Prereq: senior standing; completion of ENV 0499 and 0595. No graduate credit. Independent work in the field of environmental studies. Work may be done in the context of individual research, in the laboratory or in the field, or through the internship in government or private enterprise.

0595. (I E 0595) Special Topics in Industrial Engineering I. Cr. 1-4.

Prereq: consent of chairman. Special subject matter in industrial engineering. Topics to be announced in *Schedule of Classes*.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.



FAMILY AND CONSUMER RESOURCES

Office: 160 Old Main

Chairman: Esther D. Callard

Administrative Assistant: Karen Szymanski

PROFESSORS

Mary Jane Bostick, Esther D. Callard

ASSOCIATE PROFESSORS

Jeanne A. Allen, Manetta Heidman (Emeritus), Marqueta C. Huyck, L. Margaret Johnson (Emeritus), Luella M. Lutz, Leora A. Shelef

ASSISTANT PROFESSORS

Phyllis A. Ashinger, Carol Davey, Paul Giblin, D. June Grossbart, Melissa G. Kaplan, Thomas F. Nothaft, Nathan W. Shier, Phyllis K. Sprague (Emeritus), Catherine F. Sullivan, Mary Jane Van Meter, Therese Warburton (Emeritus), Kathryn Urberg.

INSTRUCTORS

Doris Moore, Paul Sabatini

RESEARCH ASSISTANT

Samuel Agronow

COLLEGE OF LIFELONG LEARNING LIAISON

Anne Linn

DEGREE PROGRAMS

Bachelor of Arts — with a major in family and consumer resources

Bachelor of Science in Family and Consumer Resources

Master of Arts — with a major in family and consumer resources

Master of Science in Family and Consumer Resources

The curricula in family and consumer resources focus on the development and relation to near environment (food, clothing and shelter) of the human being. The family is a focal point because of its contemporary functions as a supportive institution in human development. Each curriculum is designed, however, for the professional person, man or woman, who works in areas formerly the province of the home, but now centered in business, industry, and government service. Specifically, the department prepares persons to

engage in hospital and commercial dietetics or research in foods and nutrition; textile research, apparel design, or fashion merchandising; housing and interior design; consumer education and related communication arts; and human development and family welfare fields.

Facilities

The consumer affairs area maintains a resource room in Purdy Library. This project includes a collection of current consumer literature, media kits, and government publications for review and research by students, faculty, and community consumer consultants.

An Infant Development Laboratory is available for observation of and interaction with infants and their mothers. A nursery school is conducted as a participation and observation laboratory for experience with children two to five years of age.

Students interested in the area of human development may elect courses at Merrill-Palmer Institute in their junior or senior year and in graduate programs. The Institute is utilized by students in this department who are specializing in human development and relations, and in nutrition.

BACHELOR OF ARTS WITH A MAJOR IN FAMILY AND CONSUMER RESOURCES

Liberal Arts group requirements for this degree are established by the College (see page 230).

BACHELOR OF SCIENCE IN FAMILY AND CONSUMER RESOURCES

Group requirements for this degree correspond with Liberal Arts group requirements (see page 230), with two exceptions: (1) there is no foreign language requirement; (2) thirty-six credits in natural science are required.

Major Requirements — To meet requirements for either of the above degrees, a student must complete at least forty-two credits in one of the special curricula.

A suggested four year curricula in each area of specialization may be obtained from the departmental office or from major advisers. The choice of electives within the special curriculum will be guided by the specific professional interest of the student.

Pre-education students preparing to teach home economics subjects should see the Administrative Assistant for curriculum guides.

Non-majors may elect up to twenty-three credits in family and consumer resources.

NUMBERING SYSTEM DESIGNATIONS FOR CURRICULAR AREAS

The first and second digits of all courses conform to the University course numbering system.

The third digit (as 0541) indicates subject matter as follows:

- 0 courses applicable to all curricula
- 1 courses in the foods area
- 2 courses in the nutrition area
- 3 courses in the institution administration area
- 4 courses in the textile and fashion merchandising area
- 5 courses in the apparel design area
- 6 courses in the housing and interiors area
- 7 courses in the consumer affairs area
- 8 courses in the human development and relationships area
- 9 seminars, independent studies, and workshops offered under each curriculum

Courses with a third digit of "0" or "9" may be recommended or required in any of the special curricula described below.

A fourth digit of "0" may indicate a course that is not recommended for majors. Check course description.

SPECIAL CURRICULA (UNDERGRADUATE)

Curricula in Areas of Clothing and Textiles

These curricula provide the student with a broad background in the area of clothing, textiles, and fashion merchandising. Consideration is given to the creative aspects of apparel and textile design, historical and sociological influences on fashion, technological advances in textile manufacturing and garment construction, and implications for the clothing consumer and merchandiser. Courses should be elected from the following:

Family and Consumer Resources: courses with a third digit of "4" or "5", plus 0204, 0695

Art 0131

Art History 0100

Psychology 0198

Sociology 0201 or Social Science 0191, 0192

Speech 0200

Apparel and Textile Design — students who wish to prepare for positions in the fashion or textile design fields should elect additional courses in art and art history to a total of at least twenty-four credits.

Fashion Merchandising — students whose objective is to enter the merchandising field are required to elect at least twenty credits from Marketing and Management courses in the School of Business Administration including the following:

Marketing 0342, 0581

Textile and Clothing — students interested in the technical aspects of textiles preparing for employment with manufacturers, commercial or government testing laboratories, or college teaching, are required to elect at least twenty credits in chemistry.

Curricula in Area of Consumer Affairs: Consumer Economics, Foods and Business, Journalism

Curricula in the general area of consumer affairs have been designed to give students a liberal education with the opportunity for concentration in particular professional specialties. Each of these specialties is directed toward positions in business, government, or other agencies concerned with consumer interests, information or education. The selection of courses considers socio-economic influences on consumer decision-making, technological advances affecting goods for choice, and their relevance for consumers, manufacturers, retailers, and those concerned with consumer information and protection.

The following courses common to all these areas should be elected:

Family and Consumer Resources: courses with a third digit of "0" and "7", plus 0180, 0213, 0221, 0311, 0695
Business Administration: Marketing 0342, 0545, 0549
Chemistry 0102, 0103, 0104
Economics 0101, 0102
Humanities: four credits beyond group requirement
Journalism 0215
Psychology 0198, 0350
Sociology or Anthropology: four credits
Speech 0200

Each of the following professional specialties has courses to recommend in addition to the above.

Consumer Economics — for students who wish to concentrate their professional preparation in the area of consumer interests. It prepares them to work with government agencies, consumer marketing programs, and consumer oriented businesses. It offers scientific and professional materials on consumer protection, economics, and education.

In addition to the above, courses should be elected from the following:

Family and Consumer Resources 0513, 0541, 0543, 0548, 0561, 0572, 0582, 0611
Business Administration: twelve credits
English: four credits beyond group requirement
Journalism 0301
Psychology 0558 or 0567

Foods and Business — prepares students interested in home service with utilities or developmental work with food, household equipment companies or food marketing organizations. Additional courses should be elected from the following:

Family and Consumer Resources 0513, 0616
Biology 0103, 0220
English: four credits beyond group requirement

Journalism — prepares students interested in careers in radio-TV, printed media, public relations, fashion industries, utilities, food and equipment companies and similar businesses or fields. Advanced major courses can be concentrated in a particular area to meet individual interests. Experience through part-time employment in this field is encouraged. Additional courses should be elected from the following:

Family and Consumer Resources 0513 or 0541, 0543 or 0561 or 0611, 0548, 0572, 0592

Business Administration: eight credits
English: twelve credits beyond group requirement
Journalism 0301, 0560

Curricula in Area of Dietetics, Food Science, Institution Administration and Nutrition

Hospital Dietetics — upon completion of this curriculum, one must either complete an internship in one of the American Dietetic Association (A.D.A.) approved hospitals; serve a pre-planned traineeship in a hospital which can provide experiences similar to those in the internship; or earn a Master's degree in the area of foods and nutrition and work for six months with a registered dietitian or nutritionist who will recommend one for membership in the American Dietetic Association. In addition, for registration an individual must pass a comprehensive registration examination given by the A.D.A. The following requirements will be modified to conform to any future changes made in the academic requirements of the A.D.A.

Family and Consumer Resources 0213, 0214, 0221, 0311, 0331, 0375, 0502, 0513, 0523, 0524, 0533, 0534, 0616, 0635, 0695
Anthropology 0210
Biology 0103, 0187, 0220
Business Administration: Management 0362; 0570 (or Psychology 0308)
Chemistry 0107, 0108, 0110, 0224, 0226, 0228, 0560
Economics 0101
Psychology 198, 0308 (or Management 0570)
Sociology 0201
One course in statistics

Elect one of the following specializations:

General:

Family and Consumer Resources 0525, 0526, 0617, 0622
Business Administration: Management 0560, 0570 (or Psychology 0350), 0661
Computer Science 0201

Management:

Family and Consumer Resources 0533, 0534, 0592
Business Administration: Accounting 0310, 0311; Management 0160
Computer Science 0201
Economics 0541 (or Management 0574)

Community Nutrition:

Family and Consumer Resources 0525, 0526, 0529, 0621
Psychology 0330 or 0360

Institution Administration — this curriculum is for those students who wish to prepare for administrative positions in restaurants, industrial food service, college and residence or school food services. Eligible graduates may apply for admission to administrative internships approved by the American Dietetic Association.

Students in this curriculum should follow the hospital dietetics curriculum except for the following: Biology 0187 and Family

and Consumer Resources 0523, 0524, 0606 are not required. Chemistry 0102, 0103, 0104 may be elected instead of the sequence listed. In addition to the above, students should elect: from the School of Business Administration: Accounting 0310; and all courses listed in the management specialization.

Food Science — This curriculum is for those interested in the application of modern science to the production and distribution of foods. The curriculum prepares students for work in the food industry, in quality control or development of new products, in the government, in food research, or in education.

Courses should be elected from the following:

Family and Consumer Resources 0203, 0213, 0214, 0221, 0375, 0490, 0513, 0523, 0524, 0606, 0611, 0616, 0617
Biology 0103, 0140, 0160, 0220, 0523, 0525
Chemistry 0107, 0108, 0110, 0224, 0226, 0228, 0519, 0560

Nutrition — This curriculum is for those interested in the more scientific approaches to nutrition. Students wishing to teach nutrition, work in public health nutrition or do research should follow this curriculum. Most of these positions require further graduate study.

Students in this curriculum should follow the hospital dietetics curriculum except for the following; business administration and institution administration courses are not required unless the student wishes to apply for an approved dietetic internship. Biology 0140, Computer Science 0201, and Family and Consumer Resources 0203, 0529, and 0606 are required. In addition, all courses listed in the community nutrition specialization should be elected.

Curriculum in Area of Housing and Interiors

This curriculum prepares students to work with architects, builders, interior designers, governmental agencies, manufacturers of home furnishings and equipment, home planning bureaus of department stores, and other organizations concerned with the creative and functional aspects of housing; as well as to prepare professionals who wish to establish their own interior design studios. Membership in the W.S.U. Student Affiliate Chapter of the American Society of Interior Designers is available. Appropriate secondary school preparation should include study in geometry, environmental studies, behavioral sciences and design. Courses should be elected from the following:

Family and Consumer Resources: courses with a third digit of "6", plus 0241, 0375, 0443, 0587, 0695
Art 0101, 0102, 0131, 0132, 0134, 0135, 0232, 0516, 0636, 0638
Art History 0100 or 0212
Business Administration: Marketing 0342, 0532
Civil Engineering Technology 0501, 0502
Economics 0102
Philosophy 0370
Psychology 0198
Sociology 0201 or Social Science 0191, 0192
Speech 0200
Urban Planning 0502

Curriculum in Area of Human Development and Relationships

This curriculum prepares students whose primary educational objective is understanding human behavior as influenced by the physiology and nurture of the individual and by conditions and relationships within the family and culture. The student prepares for employment in fields which serve family welfare, investigate human development, or educate young children. Resident credit is given for at least one quarter of study at the Merrill-Palmer Institute, preferably during the last of the junior year. Courses should be elected from the following:

Family and Consumer Resources: courses with a third digit of "8", plus 0221, 0606, 0695
Anthropology 0210, 0520
Biology 0103
Psychology 0198, 0301, 0311, 0330
Social Science 0191, 0192 or Sociology 0201, 0460
Systematic concentration of sixteen or more credits in a cognate field, i.e., biology, clinical psychology, education, nutrition, pre-social work, pre-urban planning, or the education sequence for the combined degree

Combined Degree with the College of Education — Students may elect a planned curriculum that will meet the requirements for the B.S. in family and consumer resources and a teaching certificate with a specialization in nursery school and early elementary education. This curriculum requires ten to fifteen credits more than the 180 required for the regular B.S. degree in family and consumer resources.

Two-Year Child Care Program — students may take a planned sequence of ninety credits which will prepare them for work in day-care centers and child-care facilities.

MASTER OF ARTS OR MASTER OF SCIENCE IN FAMILY AND CONSUMER RESOURCES

Plan A — Thirty-six credits in course work plus a thesis.

Plan B — Forty-five credits in course work plus an essay.

The Master of Science in Family and Consumer Resources degree requires that one-half of the student's course work be in laboratory courses.

Students may concentrate their graduate work in an area of specialization. A cooperative program with the Merrill-Palmer Institute is available in the human development and relationship specialization. A final oral examination is required of all students pursuing Plan A; those under Plan B may request a waiver of the oral examination provided they have maintained a 3.50 h.p.a. and demonstrated good additional communication skills, and upon their adviser's recommendation.

Admission

Applicants for a graduate degree in family and consumer resources must have at least a 2.80 h.p.a. Persons lacking a limited number of prerequisites may be admitted on probation until completion of certain courses specified by the adviser. Additional requirements depend upon area of specialization.

Consumer Affairs — Undergraduate preparation must include a minimum of fifteen credits in consumer affairs, with supporting courses in the social sciences (especially economics) and psychology. Particular business administration courses will be reviewed for acceptance as allied to the area in lieu of some of the social science courses.

Foods and Nutrition — Undergraduate preparation must include a minimum of twenty credits in the subject areas of food preparation, meal planning, nutrition or institution administration with supporting courses in bacteriology, chemistry, economics, physiology, psychology, and sociology.

Housing and Interiors — Undergraduate preparation must include a minimum of fifteen credits in housing and interior design or environmental design with supporting courses in allied fields such as art, architectural drawing, urban planning, and other closely related areas.

Human Development and Relationships — Undergraduate preparation should include approximately twenty credits in child development or such allied fields as child psychology, family sociology or early childhood education, or in one of the medical or biological specialties.

Clothing and Textiles — Undergraduate preparation must include a minimum of fifteen credits in the subject matter areas of clothing, clothing selection, and textiles, with supporting courses in art (including basic design), science, social science, or business.

The **Graduate Record Examination** is required of all students.

Candidacy must be established by the time eighteen credits have been earned. The committee on graduate studies may require satisfactory achievement in a comprehensive examination before candidacy is recommended.

ASSISTANTSHIPS

Assistantships are available each year to applicants having the highest scholarship and showing the greatest potential capacity for professional achievement. Each assistantship presumes an average of twenty hours per week of service to the instructional program in the department. Letters of application should be directed to the Chairman of the Department.

COURSES OF INSTRUCTION¹ (FAC)

0100. Current Trends in Family and Consumer Resources. Cr. 1. Required of majors during first quarter as freshmen or transfer students. Family and consumer resources as a profession; courses of study, career opportunities.

0103. The Consumer and Ecology. Cr. 3. The consumer ecosystem and environmental quality; concern for consumer priorities, social discipline, and natural and technological resources.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

0130. Introduction to Medical Food Service Operations. Cr. 2. All phases of operation necessary for effective supervision of a medical care food service department. Prerequisite for all courses in the Dietetic Assistant series.

0131. Basic Nutrition and Diet Modification. Cr. 2. Nutrition and modification of the normal diet for abnormal health conditions; menu writing and dietary calculations using exchange lists.

0132. Dietary Food Study and Menu Planning. (1,2). Cr. 2. Methods, standards and principles in the preparation of foods in quantity. Menu planning for various types of food service units.

0133. Food Service Purchasing and Records. Cr. 2. Food purchasing and record keeping in relation to the development of specifications and control of inventories.

0134. Food Service Equipment: Use and Layout. Cr. 2. Equipment characteristics and evaluation; the effect of equipment on work flow and simplification; use of equipment in food production.

0135. Dietary Personnel Supervision. Cr. 2. Personnel problems pertinent to efficient food service operations; supervisors' responsibilities and teaching techniques of motivating employees.

0136. Supervised Work Experience in Institutional Administration. Cr. 2 (Max. 8). Correlates classroom theory with practical work experience in the following areas of food service: orientation, administration and food production, personnel and patient food service, and supervision.

0137. Problems in Medical Food Service Administration. Cr. 2 (Max. 6). Prereq: completion of Dietetic Assistant Program or consent of instructor. Current issues and problems pertaining to food service operations in hospitals, nursing homes and extended care facilities.

0154. Clothing I: Selection and Construction. Cr. 4. Basic techniques in the construction of garments; the application of elements and principles of design to the selection of clothing.

0171. Consumer Information: Clothing and Accessories. Cr. 4. No credit after Family and Consumer Resources 0347. Not recommended for clothing majors. Recent developments in clothing and accessory markets. Economic, aesthetic, and functional considerations in selection of fabrics, clothing, and accessories.

0180. Individual Development through Family Interaction. Cr. 4. Bio-social theory of human development. Focus on critical periods in growth cycle; impact of parent-child relations on behavior; mutuality of needs among family members.

0182. Supervised Observation of Child Development: Birth to Age Five. (2,4). Cr. 4. Prereq: FAC 0180; satisfactory health record, TB test within last six months. No credit after Family and Consumer Resources 0282. Observation of infants, toddlers and preschool children in homes and in group settings. Comparison of observed behavior to normative growth and development data. Implications for adult-child relationships and child care programming.

0185. Child Development Principles in Home and Institutional Settings. Cr. 4.

Prereq: FAC 0180. Practical application of developmental principles to variant group settings: day care and foster homes, residential institutions and pediatric wards.

0186. Survey of Early Child Care. (2,4). Cr. 4.

Infants and young children from the urban area. Field observations in homes and in community child care programs.

0187. Survey of Gerontological Care Situations. (2,4). Cr. 4.

Focus on care of elderly in a variety of settings. Field observations.

0203. Man, Food and Environment. Cr. 3.

Socio-economic origins of ethnic food pattern and habits and their relationship to satisfaction and nutrition. Technological, chemical and ecological consideration in food production. Food challenges of the future.

0204. Clothing and Culture. Cr. 3.

Contemporary and historic use of clothing and textiles within the context of social, psychological, economic and aesthetic considerations.

0213. Foods I. Cr. 2.

Credit only upon completion of Family and Consumer Resources 0214. Coreq: FAC 0214. Chemical and physical properties of foods that affect handling and preparation. Study of fruits, vegetables, cereals, beverages, milk, cheese, meats, fish, poultry, batters and doughs.

0214. Foods Laboratory I. Cr. 2.

Credit only upon completion of Family and Consumer Resources 0213. Coreq: FAC 0213. Laboratory problems paralleling the principles discussed in Family and Consumer Resources 0213.

0221. Elements of Nutrition. Cr. 4.

Energy and nutrient needs of all age groups. Personal, family, social, economic food problems.

0223. Principles of Nutrition and Nutrient Metabolism. Cr. 2.

Prereq: CHM 0104. Open only to students in the College of Nursing. Fundamentals of nutrition and food selection. Role of the nutrients in the maintenance of health and in the prevention of malnutrition at all ages.

0231. Introduction to Food Service Systems Management. (2,3). Cr. 3.

Institutional food service systems; organization and management problems specific to each; trends for the future; field trips to food service institutions.

0241. Textiles I. Cr. 4.

Historical development of fibers; the impact of technological advances on yarn and fabric construction; recognition of fiber properties; finishing and dyeing processes.

0254. Clothing II: Design and Construction. Cr. 4.

Prereq: FAC 0154, 0241. Use of designer patterns and special fabrics in construction of structured and unstructured garments. Pattern alterations and fitting.

0260. Introduction to Housing and Interiors. (3,2). Cr. 4.

Functional, aesthetic, financial, and psychosocial aspects of the home and its furnishings; problems in evaluating floor plans and in selecting and arranging furnishings.

0263. Interior Design: Presentation Techniques (ART 0236). Cr. 4.

Prereq: FAC 0260 for family and consumer resources majors. Introduction to contemporary media and methods used in the preparation of presentation boards: layout, transfer techniques, methods of lettering, matting, overlays.

0275. Consumer Resource Management. Cr. 4.

Theory and application of management related to the consumer throughout life cycle; function of decision-making in realizing values and goals using resources.

0282. Experiences with the Young Child. Cr. 3.

Prereq: satisfactory health record; TB test within last six months; coreq: FAC 0283. Credit only on completion of FAC 0283. Growth and development of the child, age two to five; methods of care and guidance in a group setting.

0283. Experiences with the Young Child: Laboratory. Cr. 2.

Prereq: satisfactory health record, TB test within the last six months; coreq: FAC 0282. Student participation in toddler and nursery school laboratory.

0291. Workshop. (2,4). Cr. 2-4 (Max. 12).

Application of theoretical principles to selected areas of family and consumer resources. Topics and prerequisites to be announced in *Schedule of Classes*.

0311. Management, Cultural, and Historical Aspects of Food. (2,2). Cr. 3.

Prereq: FAC 0213 or consent of instructor. Social, cultural and historical interrelationships of food and its service. Managerial, economic, psychological, nutritional, and aesthetic implications.

0331. Quantity Food Production. (3,3). Cr. 4.

Prereq. or coreq: FAC 0213. Standards, principles, methods and experiences in producing quality food; menu planning for various types of food service units.

0341. Textiles II. (3,2). Cr. 4.

Prereq: FAC 0241 or consent of instructor. Effect of fiber, yarn, construction, design and finish on wearing quality and appearance of fabrics. Identification, testing. Implications for use and care.

0347. Merchandise Information: Clothing and Accessories. Cr. 4.

No credit after Family and Consumer Resources 0171 or 0571. Prereq: FAC 0241. Quality and value in fashion merchandising. Manufacturing processes, government regulations, selling points.

0348. Introduction to Fashion Merchandising. Cr. 4.

Psychological, sociological and economic aspect of fashion; contemporary costume and fashion trends, retail establishments and opportunities in fashion. Field trips.

0360. Determinants of Housing. Cr. 4.

Interplay of forces that shape housing: history, need, social and cultural attitudes and values, economics, technology and aesthetics. Environmental context.

0361. Interior Design: Color, Texture, Light (2,4). Cr. 4.

Prereq: FAC 0241 and 0260. Aesthetic and functional properties of interior design materials; problems in coordination for specifically defined situations. Studio.

0375. The Consumer and the Market. Cr. 4.

No credit after FAC 0575. Economics of consumption as related to consumer purchases of goods and services. The consumer view-

point regarding credit, advertising, consumer protection agencies and legislation.

0381. Experiences with the Infant. Cr. 3.

Coreq: FAC 0382. Credit only on completion of FAC 0382. Growth and development of the child from birth to two years of age.

0382. Experiences with the Infant: Laboratory. Cr. 1.

Prereq: satisfactory health record; TB test within the last six months; coreq: FAC 0381. Direct participation in infant care within the laboratory setting; observation of parent-infant interaction.

0385. Child Development in the Day Care Setting. (3,4). Cr. 5.

Prereq: FAC 0180, 0186, satisfactory health record, and TB test within last six months. Growth and development of the preschool child in the day care setting. Methods of care and guidance. Student participation in supervised full day care experience.

0389. Child Care Center Administration. Cr. 4.

Prereq: sophomore standing. Applied principles relating to the operation and management of day care facilities. Technical and financial aspects.

0443. Textile Design. Cr. 4 (Max. 8).

Prereq: FAC 0241. Historic and contemporary techniques used in the structured and surface enrichment of fabrics. Application of design principles; exploratory techniques.

0445. Socio-Psychological Aspects of Clothing. Cr. 4.

Influence of cultural standards, individual roles, technological advances, and economic changes on the development and meaning of dress.

0453. Fashion Illustration. (3,2). Cr. 3.

Basic fashion rendering techniques using a variety of media.

0463. Interior Design: Basic Skills. Cr. 4.

Prereq: ART 0132; FAC 0361. Skill development required in interior designing: perspective, sketching, quick color rendering, space planning.

0464. Design of the Residence. Cr. 4.

Prereq: FAC 0463, CE 0501. Case study of functional and aesthetic considerations in the dwelling, emphasizing human needs and values, behavioral implications. Studio development of problem solutions. Graphic and verbal presentations.

0465. Multiple Dwellings. (1,8). Cr. 4.

Prereq: FAC 0464. Case study of interior and exterior systems in housing developments: privacy, security, traffic, materials; community services and amenities; site development.

0466. Interior Design: Advanced Problems. (1,4). Cr. 4 (Max. 8).

Prereq: FAC 0464. Verbal and graphic communication skills development associated with professional practice in contract and residential design; presentation techniques, client relations.

0475. Consumers and Their Money. Cr. 4.

Economic principles and problems in relation to personal and family incomes, expenditure and responsibilities.

0480. Human Development: Theory and Methodology. Cr. 3.

Prereq: junior standing. No credit after former FAC 0680. Historical and current theories of development; their corresponding research strategies.

0482. The Young Child and the Physical Environment. Cr. 4.

No credit after Family and Consumer Resources 0291 on same topic. Influence of space and physical setting on child behavior. Application to preparing an optimal learning environment for infants and pre-schoolers.

0490. Directed Study. Cr. 2-4 (Max. 12).

Prereq: written consent of instructor.

0491. Workshop. (2,4). Cr. 2-4 (Max. 12).

Application of theoretical principles to selected areas of family and consumer resources. Topics and prerequisites to be announced in *Schedule of Classes*.

0500. Contemporary Issues Affecting Consumers. Cr. 1-4 (Max. 8).

No topic may be repeated. Topics to be announced in *Schedule of Classes*.

0502. Communication Techniques for Family and Consumer Resources. Cr. 4.

Prereq: junior or senior standing or consent of instructor. The communication process, including professionally oriented written materials; design, layout, preparation for printing. Techniques of lecture-demonstration. Preparation of materials for radio-TV.

0503. Household Equipment Evaluation. Cr. 4.

Prereq: consent of instructor. Techniques of selection and care of appliances, utensils and tools; principles of kitchen design and work simplification.

0513. Foods II. (2,4). Cr. 4.

Prereq: FAC 0213 and a course in organic chemistry. Advanced study of the chemical, physical and sensory properties of foods.

0520. Fundamental and Practical Nutrition. Cr. 3.

For non-nutrition majors only. Basic principles of nutrition. Practical consideration of specific nutritional problems at the individual, national and world level.

0523. Nutrition and Metabolism I. Cr. 4.

Prereq: one course in each of the following: human physiology, organic chemistry and nutrition. Carbohydrate, fat, protein and energy metabolism.

0524. Nutrition and Metabolism II. Cr. 4.

Prereq: FAC 0523. Vitamins, minerals, electrolyte balance.

0525. Nutrition in Disease. Cr. 4.

Prereq: FAC 0524. Fluid balance, acid-base balance and dietary modifications for therapy in metabolic and pathological disorders with adjustment for cultural patterns.

0526. Practicum in Nutrition. Cr. 3.

Prereq: FAC 0525, PSY 0308 or equiv.; a course in biochemistry. Open only to seniors and graduates. Supervised participation in professional work in community agencies or nutrition clinics; diet counseling for individuals and small groups.

0529. Child Nutrition. Cr. 3.

Prereq: consent of instructor or adviser. Chemical growth and nutritional requirements from infancy through adolescence.

0533. Institution Equipment and Furnishings. Cr. 3.

Prereq. or coreq: FAC 0331. Selection and arrangement for food service departments.

- 0534. Quantity Food Purchasing and Cost Control. Cr. 4.**
Prereq: consent of instructor. Principles and methods.
- 0540. New Developments and Trends in Textiles. Cr. 3.**
Prereq: FAC 0241 or consent of instructor. Special problems based on individual interests.
- 0541. Practicum in Textile Testing. Cr. 4.**
Prereq: FAC 0341 or consent of instructor. Orientation to physical testing procedures related to textiles. Individual research.
- 0543. History of Textiles and Costume. Cr. 4.**
Pre-historic to nineteenth century historic textiles and costumes as they reflect sociological, political and economic concepts of a given period.
- 0547. Visual Display in Merchandising. (2,4). Cr. 4 (Max. 8).**
Only four credits toward family and consumer resources degree.
Prereq: ART 0101 or 0131. Visual merchandising concepts and trends; relationship of design elements and principles to the tools and structures used in display. Creative experimentation in various media.
- 0548. Fashion in Merchandising. Cr. 3.**
Fashions in fabrics. Outstanding designers. Fashion markets, coordination, training, promotion. Publications and other sources of information. Lectures by specialists.
- 0549. Economics of Merchandising. Cr. 3.**
Prereq: eight credits in marketing including MKT 0342. Application of business theory to fashion merchandising; design and implementation of merchandise plan.
- 0552. Fashion Design: Tailoring. (3,2). Cr. 4.**
Prereq: FAC 0254 or consent of instructor. Specialized techniques applied to custom tailored coats, suits, and accessories including an evaluation of various tailoring methods.
- 0554. Advanced Problems in Apparel Design and Construction. (3,2). Cr. 4 (Max. 8).**
Prereq: FAC 0552, 0558 or 0559 or consent of instructor. New techniques; emphasis on fiber and fabric technology; individual problems.
- 0558. Fashion Design: Flat Pattern Designing. Cr. 4.**
Prereq: FAC 0254 or consent of instructor. Principles; construction and use of a sloper for execution of original designs.
- 0559. Fashion Design: Draping. Cr. 4.**
Prereq: FAC 0254 or consent of instructor. Development and modification of dress form to duplicate student's figure; creation of original garments by draping on the form.
- 0561. History of Furniture. Cr. 4.**
Patterns of historical development and change in furniture and interiors from man's earliest expressions to the twentieth century, as they reflect the changing cultural framework of civilization.
- 0562. Twentieth Century Interiors: Art Nouveau Through Contemporary. Cr. 4.**
Prereq: FAC 0561 for housing and interiors majors. Relationships of furnishings and accessories to recent developments in materials and technology; changing concepts of architectural relevance. Local field trips.
- 0565. Interior Design: Materials and Systems. Cr. 4.**
Prereq: FAC 0361 or consent of instructor. Principles and methods employed in designing and specifying interior furnishings, lighting, acoustical controls, and mechanical climate systems.
- 0571. Consumer Problems in Clothing Selection. Cr. 4.**
No credit after Family and Consumer Resources 0171 and 0347. Economic problems in budgeting, selection and care of clothing. Legislation for consumer protection.
- 0572. Food Products Selection. Cr. 4.**
Prereq: FAC 0213 or equiv. Economics of marketing and consumer problems. Standards, legislation related to consumers and marketing.
- 0575. Recent Trends in Consumer Affairs. Cr. 4.**
Prereq: graduate standing and consent of instructor; no credit after Family and Consumer Resources 0375. Consumer economic problems regarding regulation, responsibility, advocacy and protective legislation, consumer behavior, advertising and marketplace decisions.
- 0580. Maturation and Development of the Individual. Cr. 3.**
No credit after FAC 0180 or 0680. Infancy through aging; critical problems in each period; development of personal identity.
- 0582. Developmental Assessment of the Young Child. (2,4). Cr. 4.**
Prereq: FAC 0282 or equiv.; satisfactory health record, TB test within last six months. Research orientation; assessment of the young child, ages three to five, through systematic observation and testing within the nursery school laboratory; independent investigation in the field.
- 0584. Experiences with School-Age Children. (3,3). Cr. 4.**
Prereq: FAC 0282 or consent of instructor. Students work directly with selected school age children. Laboratory experiences related to child development principles presented in lecture.
- 0585. Child Development Principles Applied to Preschool Programming. (3,3). Cr. 4.**
Prereq: introductory course in child development or experience in preschool program; satisfactory health record; TB test within last six months. The individual child in a group setting, utilization of space and materials to foster growth. Case studies of children; one morning per week in preschool setting.
- 0586. (TED 5319) Seminar in Adult Relationships in the Preschool. Cr. 3.**
Prereq: senior or graduate standing or consent of instructor. Psychosocial approach to the adults in the young child's life; staff, parents and community.
- 0587. Approaches to the Study of the Family. (3,2). Cr. 4.**
Prereq: introductory courses in psychology and sociology and FAC 0180 for undergraduates. Literature, observations and theoretical models employed to study family structure and function. Systems perspective.
- 0588. Human Development Practicum: Parents. (2,4). Cr. 4.**
No credit after Family and Consumer Resources 0491 or 0791. Prereq: FAC 0282 or 0381 or consent of instructor. Not to be taken concurrently with Family and Consumer Resources 0282, 0582 or 0782. Relating human development principles to problems or parent-child interaction. Students must have direct involvement with child-parent dyads in existing child development laboratories.
- 0589. Emotional Development of the Young Child. Cr. 3.**
No credit after Summer, 1974, Workshop (Family and Consumer Resources 0491 or 0791). Prereq: junior standing or consent of instructor. Utilization of puppetry and other techniques for com-

munication with children in emotional areas. Fostering positive self-concept.

0592. Supervised Field Experience (U S 0601). Cr. 2-4.

Prereq: written consent of instructor. Supervised field experience designed to correlate classroom theory with practical work.

0606. Research Problems in Family and Consumer Resources. Cr. 4.

Prereq: consent of instructor. Research orientation: acquaintance with published data, principles of design, methods of collecting data, and basic statistical analysis.

0611. History of Foods. (3,2). Cr. 4.

Prereq: senior or graduate standing; consent of instructor or adviser. Origins of food and food patterns of historical significance and their relationship to the art, culture and economics of their time.

0616. Food Standards and Quality Control. Cr. 3.

Prereq: FAC 0203, a course each in foods and organic chemistry or consent of instructor. No credit after Family and Consumer Resources 0716. Theoretical interpretation of government food regulations and of grading and testing of food products.

0617. Food Standards and Quality Control Laboratory. (0,5). Cr. 2.

Prereq. or coreq: FAC 0616 or 0716; one course each in foods, organic chemistry and microbiology. Practical interpretation of government food regulation; grading and testing of food products.

0621. Interpretation of Nutrition. Cr. 3.

Prereq: FAC 0525. Principles of learning as related to nutrition. Methods of presenting nutrition to various groups.

0622. Nutrition Self-Studies. (1,4). Cr. 3.

No credit after FAC 0521. Prereq: FAC 0524 or consent of instructor. Experience in following a prescribed diet; biological sample collection; laboratory analytical procedures; data interpretation. (Former FAC 0521.)

0635. Organization and Management of Food Services Systems. Cr. 4.

Prereq: consent of adviser or instructor. Managerial processes of planning, organizing, controlling and evaluating the operation of all units of varying organizational structures and objectives in food service systems.

0663. Environmental Design: Human Aspects. (2,4). Cr. 4.

Prereq: 16 credits in behavioral sciences and consent of instructor. Exploration of experimental and theoretical work focusing on the influence of the physical environment on human behavior: group and institutional setting. Individual research problems, verbal and graphic, applied to sample urban behavior settings.

0664. Urban Family Housing. Cr. 4.

Prereq: consent of instructor. Effects of different urban housing situations on family behavior patterns; urban communities; federal housing legislation and local implementation.

0681. Human Development: Infancy. Cr. 3.

Prereq: senior standing, FAC 0381 and 0480; or consent of instructor. Prenatal and infancy. Theories and research in the areas of motor, perceptual, cognitive, language, and social-emotional development. Implications for child nurture and guidance within the family and group settings.

0682. Human Development: Early Childhood. Cr. 3.

Prereq: senior standing, FAC 0282 and 0480; or consent of instructor.

0683. Human Development: Middle Childhood and Adolescence. Cr. 3.

Prereq: senior standing, FAC 0480 and 0584; or consent of instructor.

0686. Studies in Child Rearing. Cr. 3.

Prereq: consent of instructor. Child rearing and factors influencing parental practices. Recent work dealing with characteristics and sources of contemporary child rearing practices. Implications for teachers, social workers, other professional people.

0687. Contemporary Issues in the American Family. Cr. 3.

Prereq: senior or graduate standing. Institutional view of nuclear families; current forces and directions of change; effects on family interaction and patterns of child-rearing.

0688. New Perspectives in Human Development. Cr. 2 (Max. 6).

Prereq: consent of instructor. Topics to be announced in *Schedule of Classes*.

0689. Human Development: Adulthood and Aging. Cr. 4.

Prereq: FAC 0480 or equiv. Physiological development in adulthood through the later stages of aging, interrelationship with psycho-social behavior; theories, current issues, and public policy.

0693. Study Tour. (1,6). Cr. 3 (Max. 6).

Prereq: written consent of instructor. Group tour to major market sources; observation and analysis of products and marketing procedures. Offered for selected departmental areas. Topics to be announced in *Schedule of Classes*.

0695. Seminar. Cr. 3-4 (Max. 9).

Prereq: consent of instructor. Offered for each area of specialization. Topics to be announced in *Schedule of Classes*.

0716. Food Standards and Quality Control. Cr. 3.

Prereq: one course each in foods and organic chemistry or consent of instructor. No credit after Family and Consumer Resources 0616. Theoretical interpretation of government food regulations and of grading and testing of food products.

0726. Practicum in Nutrition. (1,8). Cr. 3.

Prereq: FAC 0525, PSY 0308 or equiv.; a course in biochemistry. Open only to graduate students. Offered for S and U grades only. Supervised participation in diet counseling in community agencies or nutrition clinics.

0743. Textile Design. Cr. 4 (Max. 8).

Prereq: consent of instructor. Historic and contemporary techniques used in the structured and surface enrichment of fabrics. Application of design principles; exploratory techniques.

0745. Socio-Psychological Aspects of Clothing. Cr. 4.

No credit after Family and Consumer Resources 0445. Influence of cultural standards, individual roles, technological advances and economic changes on the development and meaning of dress. Research paper.

0754. Advanced Problems in Apparel Design and Construction. (3,2). Cr. 4 (Max. 8).

Prereq: FAC 0552 and 0558 or 0559 or consent of instructor. New techniques with emphasis on fiber and fabric technology; individual problems.

0760. Determinants of Housing. Cr. 4.

Prereq: FAC 0606. Interplay of forces that shape housing: history, need, social and cultural attitudes and values, economics, technology and aesthetics; environmental context; individual research responsibility.

0765. Multiple Dwellings. (1,8). Cr. 4.

Prereq: FAC 0464. Case study of interior and exterior systems in housing developments: privacy, security, traffic, materials; community services and amenities; site development; coordination responsibility. Studio.

0766. Interior Design: Advanced Problems. (1,4). Cr. 4 (Max. 8).

No credit after Family and Consumer Resources 0491. Prereq: FAC 0464. Verbal and graphic communication skills associated with professional practice in contract and residential interior design; forms of client-designer contracts, pricing and estimates.

0773. Experimental Equipment. Cr. 4.

Prereq: consent of instructor. Research problems in the evaluation of design, engineering, and efficiency of home appliances. Recent technological development.

0775. Consumer Problems. Cr. 4.

Prereq: consent of instructor. Economics of consumption as related to consumer purchases of goods and services. Research problem required.

0776. Consumer Law and Public Policy. Cr. 4.

Prereq: FAC 0375 or 0575 or consent of instructor. Consumer rights and responsibilities within the legal system; fraudulent practices, contracts, landlord-tenant disputes, property acquisition, consumer credit, collection practices and the related judicial system.

0778. Practicum in Consumer Resources. Cr. 2-6.

Independent problems, research or professional work in the consumer, foods, or equipment areas.

0781. Human Development Practicum: Infancy. (2,4). Cr. 4.

Prereq: satisfactory health record; FAC 0681 or equiv. Orientation to research methods in infant development. Experience in infant testing, measurement, and assessment.

0782. Human Development Practicum: Young Child. (2,4). Cr. 4 (Max. 12).

Prereq: consent of instructor; satisfactory health record, TB test within last six months. Four credits only applicable toward master's degree. Supervised experiences with children ages two to five years with emphasis on problems in child development and guidance.

0783. Development of Affect: Theories and Implications. (3,2). Cr. 4.

Prereq: consent of instructor. Basic conceptualization of and research in affect; application to developmental assessment in early childhood; effect of environmental factors.

0787. Dynamics of Family Interaction. Cr. 3.

Prereq: consent of instructor. Current theories and concepts of family interaction with focus on family communication patterns, emerging family roles and alternative patterns of family adjustment to internal and external stress.

0788. Conceptual Frameworks for Studying the Family. Cr. 3.

No credit after Family and Consumer Resources 0695. Prereq: SOC 0550 or FAC 0587 or consent of instructor. Current develop-

ments in family theory; evaluation of research conducted from various theoretical orientations; application to an understanding of family issues and problems.

0789. Human Development Practicum: Adulthood and Aging. (2,4). Cr. 4 (Max. 8).

Prereq: FAC 0689 or consent of instructor. Offered for S and U grades only. Experience in community service with institutions or agencies serving the aged. Planned in response to specific professional goals of students.

0790. Directed Study. Cr. 2-4 (Max. 12).

Prereq: consent of adviser, instructor, and graduate officer. Offered for each area of specialization.

0791. Advanced Workshop. (2,6). Cr. 2-4 (Max. 12).

Application of theoretical principles to selected areas of family and consumer resources. Topics and prerequisites to be announced in *Schedule of Classes*.

0795. Seminar. Cr. 3-4 (Max. 10).

Prereq: consent of instructor. Offered for each area of specialization. Topics to be announced in *Schedule of Classes*.

0796. Research. Cr. 3-9 (Max. 9).

Prereq: consent of adviser.

0799. Master's Essay Direction. Cr. 3-4.

Prereq: consent of adviser.

***0886. Research Readings in Human Development. Cr. 3.**

Prereq: FAC 0606. Designed to review current findings in a variety of areas, such as intellectual and cognitive development, parent-child relations, effects of infant care, preschool group experiences, genetic development, and development of moral character.

0899. Master's Thesis Research and Direction. Cr. 2-12 (12 required).

Prereq: consent of adviser.

GEOGRAPHY

Office: 225 State Hall

Chairman: Fred E. Dohrs

PROFESSORS

Fred E. Dohrs, Robert J. Goodman, Bert Hudgins (Emeritus), Robert Sinclair

ASSOCIATE PROFESSORS

Robert D. Swartz, Bryan Thompson

ASSISTANT PROFESSORS

Margaret E. Crawford, Judith I. Parkhurst, Robert C. Wright

DEGREE PROGRAMS

Bachelor of Arts — with a major in geography

Master of Arts — with a major in geography

Master of Arts in Teaching College Geography

Geography is concerned with analysis of environmental and social systems, their variations over the earth's surface and their interactions in different regions. The geography program at Wayne State University has three major goals: (1) to provide students with a framework for understanding an increasingly complex world; (2) to prepare students for many occupations in which geographic understanding is essential, including urban and environmental planning, industrial and retail location analysis, community and regional development, resource conservation and management, cartography, and numerous government positions; and (3) to train students for advanced geographic research. Students are invited to consult with geography faculty members concerning the content of the discipline as well as employment opportunities available for geographers.

BACHELOR OF ARTS

Major Requirements — Students may major in geography by completing forty-five credits in the department. The sequence of courses, unless an exception is granted by the department, should include 0120, 0300, 0301, 0302, 0303, 0340, and 0390.

Recommended Cognate Courses — The varied opportunities for specialization within geography warrant careful selection of cognate courses. Geography majors generally emphasize courses in one or two other disciplines and are encouraged to do so. Choice of cognate courses should be discussed with faculty in the geography department.

Honors Program for Majors — Superior students, that is, students with an honor point average of 3.3 or better, may be admitted to the honors program in geography. The honors major student is permitted to follow a course of study independent of the standard major requirements, most of the work in geography to be done free of prescribed courses as directed study by the election of Geography 0490.

Combined Curriculum for Secondary Teaching with a major in geography is recommended for students who plan to teach geography or other social studies in the secondary schools. The major requirements as stated above must be completed. Information regarding this curriculum is on page 239.

MASTER OF ARTS

Plan A — Thirty-six credits plus a thesis.

Plan B — Forty-four credits plus an essay.

The program prepares the student with a broad foundation in geography which will enable him or her to pursue doctoral work or professional employment. The curriculum is flexible and every attempt is made to tailor individual courses of study to the goals of the student.

Admission — Requirements are the same as those for entry into the Graduate Division of the College of Liberal Arts: a student must have an honor point of 2.6 or above for the upper division of undergraduate course work. Prerequisite for admission to the Department of Geography is the completion of at least eighteen credits in geography including work in physical geography, map study, and cartography. An undergraduate major in geography is desirable but not mandatory. A student may complete prerequisites while earning graduate credit.

Candidacy must be established by the time eighteen credits, including Geography 0700 and 0780, have been earned. An official *Plan of Work* must be filed at that time.

Degree Requirements — All master's students' programs must include Geography 0700, 0780, and 0650 or its equivalent. A final oral examination is required.

Master of Arts in Teaching College Geography

Plan A — Thirty-six credits plus a thesis.

Plan B — Forty-four credits plus an essay.

This program prepares a student for teaching geography in the community college. Emphasis is placed on the acquisition of a broad background in geography and its effective presentation in the classroom.

Admission — Same as for the M.A. in geography listed above.

Candidacy is also the same as for the M.A. in geography listed above.

Course Requirements — include Geography 0700, 0780, 0650 or its equivalent. A final oral examination is required.

FELLOWSHIPS AND ASSISTANTSHIPS

The department offers a limited number of assistantships to highly-qualified students. Details and applications may be obtained from the Chairman of the departmental Graduate Study Committee.

COURSES OF INSTRUCTION¹ (GEG)

- 0110. World Regional Geography. Cr. 5.**
Cultural factors, physical conditions (climate, landforms, vegetation, etc.); spatial differences, such as, area relationships, input/output of regions, human concentrations; national and regional differences in world affairs.
- 0120. Introduction to the Environment. Cr. 5.**
Man as a participant and modifier of his physical environment.
- 0130. Economic Geography. Cr. 5.**
Basic principles of modern economic geography: population-resource foundations of the world's economic systems; spatial organization; locational theories and principles; problems of economic overdevelopment and underdevelopment.
- 0200. The World Today. Cr. 4.**
Critical areas in current world scene; geographical factors underlying internal and external problems and conflicts.
- 0203. (U S 0200) Introduction to Urban Studies (ECO 0200) (HIS 0200) (P S 0200). Cr. 4.**
Prereq: sophomore standing. Urban phenomena both past and present, including the quality and nature of urban life; major concerns of urban areas; perspectives and techniques of various urban-related disciplines. Topics to be announced in *Schedule of Classes*.
- 0220. Western Europe. Cr. 4.**
- 0230. Cultural Geography. Cr. 4.**
Cultural identity and diversity; problems in a global system; culture as a factor in population growth and distribution; diversity in resource use; spatial and environmental perception in a cross-cultural perspective.
- 0240. China and Japan. Cr. 4.**
China and Japan as contrasting models of development; analysis of physical environmental patterns and resource base; population problems; approaches to development in a global context.
- 0245. Southern Asia. Cr. 4.**
- 0250. Africa. Cr. 4.**
Major African regions; problems of resource development, economic growth and political fragmentation; issues in the South African confrontation.
- 0263. The United States. Cr. 4.**
- 0270. Latin America. Cr. 4.**
Regional and national variations in population trends, agricultural and industrial potential; transport, economic development; land tenure and physical conditions; pioneering efforts, prospects of economic integration.
- 0279. People and Environment. Cr. 3.**
Population and the land; the environmental complex; cultural, economic and political geography; current critical problems and challenges; future prospects. Topics to be announced in *Schedule of Classes*.
- 0289. Environmental Problems. Cr. 4.**
Major problems such as population, famine, pollution, soil erosion, arid climatic regions, cold climatic regions, and malnutrition. Topics to be announced in *Schedule of Classes*.
- 0300. Map Intelligence. Cr. 5.**
Prereq: consent of instructor. Map literature; visualization and reading topographic maps; functions of scale, graticule, military grid, orientation; use of maps as tools in field work.
- 0301. Thematic Cartography. Cr. 5.**
Prereq: consent of instructor. Course stressing techniques for portraying spatial data and map compilation skills.
- 0302. Survey Research and Statistical Methods. Cr. 4.**
Prereq: consent of instructor. Introduction to statistics and survey methods in the social sciences including: research design, problem-solving, data sources, sampling, interviewing, descriptive and inferential statistics.
- 0303. Pro-Seminar. Cr. 3.**
Prereq: consent of instructor.
- 0313. Introductory Urban Geography. Cr. 4.**
Geographic study of the city; its form and function with historical and cross-cultural emphasis.
- 0340. The Physical Landscape. (3,2). Cr. 4.**
Prereq: GEG 0140 or equiv., or consent of instructor. Selected elements of the physical landscape in the field or in the laboratory.
- 0390. Directed Study. Cr. 2-4 (Max. 9).**
Prereq: 18 credits in geography and consent of adviser. Readings and research.
- 0400. Philosophy and History of Geography. Cr. 3.**
Prereq: GEG 0302 or equiv., or consent of instructor. Major themes and developments in geography.
- 0490. Directed Study: Honors Program. Cr. 3-16 (Max. 24).**
Prereq: consent of chairman.
- 0525. Eastern Europe. Cr. 4.**
Prereq: one course in geography or consent of instructor. Poland, Czechoslovakia, Hungary, Rumania, Bulgaria, Yugoslavia, Albania; economic development, nationalism, minorities; problems with the USSR and relations with the West.
- 0532. Soviet Union. Cr. 4.**
Prereq: one course in geography or consent of instructor. Problems of location and environment; production problems in agriculture and industrial development; transportation difficulties; national minority issues; the Soviet Empire and global goals and confrontations.
- 0541. The Middle East. Cr. 4.**
Prereq: one course in geography or consent of instructor. Resources: abundant oil, limited water in Middle East development; the Arab-Israeli confrontation in its geographical and geopolitical setting.
- 0567. Michigan. Cr. 4.**
Prereq: consent of instructor.
- 0568. Regions of Detroit. Cr. 4.**
Delineation and analysis of cultural regions in Detroit. Identification of Detroit area regions; regional formations, characteristics and processes. Topics include the regional concept, problems of delimitation, territoriality, historical development, social and ethnic regions, economic regions, and recent and projected changes.
- 0589. Regional Studies. Cr. 3-4 (Max. 12).**
Prereq: specified by instructor. Advanced study of selected regions. Topics to be announced in *Schedule of Classes*.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

0600. Colloquium. Cr. 1.

Prereq: junior, senior or graduate standing and major or minor in geography. Majors and graduates must earn three credits in this course. Relevant current geographic literature from recognized journals and other sources selected with graduate staff.

0611. Politics and Urban Geography. Cr. 4.

Prereq: one course in geography or consent of instructor. Spatial implications of urban politics.

0612. Rural Landscape. Cr. 4.

Prereq: one course in geography or consent of instructor. Analysis of rural patterns and functions.

0613. Advanced Urban Geography (U P 0612). Cr. 4.

Prereq: GEG 0313 or consent of instructor. Urban patterns and functions. Topics include: process of urbanization, preindustrial cities, the city and its region, the city's internal structure and the future of urban society.

0614. The Metropolitan Region (U P 0602). Cr. 4.

Prereq: one course in geography or consent of instructor. Processes in metropolitan and megalopolitan development.

0615. Internal Structure of the City (U P 0632). Cr. 4.

Prereq: GEG 0313 or 0613 or consent of instructor. Internal structure of the city. Topics include: perception of the urban environment, spatial interaction and movement, models of structure and growth, migration to and within the city, ethnic and social areas, community extension, social processes and spatial form.

0616. Comparative Urban Systems. Cr. 4.

Prereq: GEG 0313 or 0613 or consent of instructor. Urban development in different world culture regions.

0617. Physical Bases of Urban Ecology (U P 0532). Cr. 4.

Prereq: GEG 0120 or consent of instructor. Morphology, geology, climatology, pollution, hydrology, soil and vegetation of urbanized areas; use in planning.

0618. Selected Urban Problems (U P 0542). Cr. 4.

Prereq: GEG 0313 or consent of instructor. Evaluation of urban problems. Topics to be announced in *Schedule of Classes*.

0619. Directed Study in Urban Geography. Cr. 2-4 (Max. 12).

Prereq: GEG 0313 or 0613 or consent of instructor. Research in cooperation with Geography graduate faculty member or members.

0621. Advanced Economic Geography. Cr. 4.

Prereq: GEG 0130 or equiv., and ECO 0102 or equiv., or consent of instructor. Spatial analysis of selected economic activities: manufacturing, agriculture, tertiary and quaternary services, urban land use.

0622. Conservation of Natural Resources. Cr. 4.

Prereq: one course in geography or consent of instructor. Resource use and conservation practices in the United States.

0623. Land and Leisure: Studies in Recreational Geography. (R P 6261). Cr. 4.

Prereq: junior standing. Spatial aspects of leisure and recreation; major topics: philosophy of leisure and recreation, research techniques, behavioral and economic aspects, recreation in the city, recreational resource use, environmental impact and future trends.

0624. Industrial Geography. Cr. 4.

Prereq: GEG 0130 or equiv., or consent of instructor. Location of industry, geography of production factors. Raw materials, labor, products, markets.

0626. Problems of Resource Management and Development (U P 0685). Cr. 4.

Prereq: one course in geography or consent of instructor. Selected problems in resource management and resource development.

0628. Marketing Geography (U P 0682). Cr. 4.

Prereq: one course in geography or consent of instructor. Factors underlying retail location and shopping center development; evaluation of population, income levels, access and competition for location decisions; techniques of sales potential estimation; retail impact on urban land use.

0629. Geography of Lesser Developed Areas. Cr. 4.

Prereq: one course in geography or consent of instructor. Factors underlying variation in national and regional development; problems and potentials of less developed areas; lesser developed regions in economically advanced nations.

0630. Advanced Cultural Geography. Cr. 4-8.

Prereq: GEG 0230 or consent of instructor. Detailed analysis of elements of culture and their importance in cultural ecology, formation of cultural landscapes, differentiation of culture areas.

0631. Political Geography and Geopolitics. Cr. 4.

Prereq: one course in geography or consent of instructor. Global geopolitical patterns and theories; environmental factors and resources in states' functions; domestic and foreign issues; location and conflicts between states.

0632. Historical Geography of the United States. Cr. 4.

Prereq: HIS 0201 or equiv., or consent of instructor. Factors in settlement and development.

0635. Geography of Ethnic Groups in the United States. Cr. 4.

Prereq: one course in geography or consent of instructor. Analysis of America's ethnic structure; concepts, theory and methods relating to the meaning of ethnicity, migration, territoriality, socio-economic and residential mobility; ethnic community formation and extension; ethnic Detroit.

0640. Morphometrics. (3,2). Cr. 4.

Prereq: GEG 0340 or consent of instructor. Quantitative analysis of landforms using point, line and areal statistics to infer landform assemblages and interpret their erosional and depositional history.

0641. Climatology. Cr. 4.

Prereq: GEG 0141 or PHY 0213 or equiv. or consent of instructor. Systematic and regional study of the atmosphere: description, genetic explanation, and physical processes underlying distributional patterns of climates.

0650. Field Geography (U S 0603). Cr. 4-5 (9 required).

Prereq: consent of instructor. Field techniques and training; analysis of problems; preparation of reports. (Former GEG 0750)

0651. Land Utilization Problems. Cr. 4.

Prereq: geography major or consent of instructor. Methods of classifying land utilization; use and misuse of land.

0652. Independent Field Study. Cr. 2-6 (undergrad. max. 6; grad. max. 4).

Prereq: one course in geography or consent of instructor. Observation and interpretation of data in the field. Class sessions preparatory to travel. Written reports.

0663. Advanced Cartography. Cr. 4.

Prereq: consent of instructor. Selected problems; landform representation, color, special topics.

0664. Techniques in Visualization. (1,3). Cr. 4.

Prereq: 20 credits in geography and consent of instructor. Compilation and photography of maps, charts, and statistical data to produce animated cartography, film strips, and overhead transparencies.

0665. Quantitative Techniques in Geographic Analysis. Cr. 4.

Prereq: GEG 0302 or equiv. Application of quantitative techniques to geography.

0670. Theoretical Geography. Cr. 4.

Prereq: GEG 0302 or equiv. Advanced methods of measurement, description, manipulation; the scientific method; review of literature on and philosophy of theoretical geography.

0671. Perception of the Geographic Environment. Cr. 4.

Prereq: GEG 0302 or equiv., or consent of instructor. Human perception and use of geographic space in a cross-cultural context; mental maps, personal space and design, territoriality, neighborhood, city space; regional perception, hazard perception; landscapes in Europe and North America.

0689. Systematic Studies. Cr. 3-4 (Max. 12).

Prereq: specified by instructor. Advanced study of selected systematic topics. Topics to be announced in *Schedule of Classes*.

0700. Seminar in Geographic Research and Bibliography. Cr. 3.

Prereq: graduate standing. Advanced professional work in geography, geographic traditions, methodologies, field and library research techniques, and the presentation of research materials.

0780. Seminar in Geography. Cr. 3.

Prereq: major in geography or consent of instructor.

0781. Seminar in Urban Geography. Cr. 3.

Prereq: GEG 0613 or consent of instructor. Urban research methods; theoretical developments in urban geography.

0785. Seminar in Systematic Geography. Cr. 3 (Max. 9).

Prereq: consent of instructor.

0786. Seminar in Regional Geography. Cr. 3 (Max. 9).

Prereq: consent of instructor.

0790. Directed Study. Cr. 3-4 (Max. 12).

Prereq: consent of adviser and graduate officer. Readings and research.

0791. Problems and Methods of Teaching Geography in the Community College I. Cr. 3-4.

Prereq: consent of instructor.

0792. Student Teaching of Geography on the Community College Level. Cr. 3-4.

Prereq. or coreq: GEG 0791 and consent of adviser. Offered for S and U grades only.

0794. Problems and Methods of Teaching Geography in the Community College II. Cr. 3-4.

Prereq: GEG 0791. Continuation of Geography 0791.

0799. Master's Essay Direction. Cr. 4.

Prereq: consent of adviser.

0899. Master's Thesis Research and Direction. Cr. 2-12 (12 required).

Prereq: consent of adviser.

GEOLOGY

Office: 201 Old Main

Chairman: Robert B. Furlong

PROFESSORS

Egbert G. Driscoll, Jr., Hugo Mandelbaum (Emeritus), Andrew J. Mozola, Willard H. Parsons (Emeritus), Luciano B. Ronca, John T. Sanford (Emeritus)

ASSOCIATE PROFESSORS

Robert B. Furlong, Donald MacLachlan (Emeritus), Richard F. Ward

ASSISTANT PROFESSORS

Joseph H. Makurath, Eric R. Swanson, Michael J. P. Welland

ADJUNCT ASSOCIATE PROFESSOR

Robert E. Mosher

ADJUNCT ASSISTANT PROFESSOR

Jane W. Renaud

DEGREE PROGRAMS

Bachelor of Arts — with a major in geology

Bachelor of Science — with a major in geology

Master of Science — with a major in geology

Geology courses consist of studies of the materials of the earth and the processes to which they have been subjected, landscape features and their origins, and the history of the earth as recorded by rocks and fossils.

The courses in geology are planned to serve the needs of four groups of students: (1) those who desire a cultural knowledge of geology as a part of a liberal education; (2) those who need geological information as a cognate subject in other professions; (3) those who wish to major in geology as part of a broad liberal education; and (4) those who plan to become professional geologists. Introductory courses are primarily cultural, but they also provide a foundation in geology for the student who desires to continue an intensive program of study. In addition, a variety of courses in various phases of geology is available to the general student. Intermediate and advanced courses are designed to develop the principles of geology beyond the elementary level and to give a firm technical foundation for advanced study in fields of geology.

BACHELOR OF ARTS

Major Requirements — This program is intended for those who wish a cultural major. It is recommended as a back-

ground for secondary school earth science teacher training. Students must complete forty credits beyond Geology 0102. Twenty of the forty credits must be from advanced courses.

At least one college course in each of two of the following fields is required: biology, chemistry and physics. Mathematics 0180 and the Foreign Language Group Requirement are prescribed. This program does not satisfy the requirements for entrance to the Master of Science degree program.

Students wishing an Earth Science Major as background for teaching in the secondary schools are recommended to the curriculum in *Unified Science* (see page 234 in this bulletin). They should take their thirty credit concentration in geology. (These thirty credits include the 0100 level courses.)

BACHELOR OF SCIENCE

Major Requirements — This program is the professional major and the proper preparation for graduate work in geology. Students must complete at least forty-six credits exclusive of the introductory courses. Twenty-six of the forty-six credits should be from advanced courses and must include at least six credits in field mapping and field techniques. This requirement may be fulfilled by completing six credits in Geology 0365 or an equivalent number of credits in an approved field course offered by another university. This program must include a year of college mathematics, a year of chemistry (or the equivalent of Chemistry 0108) and a year of physics. Under certain special circumstances, and with the approval of the student's adviser and the department chairman, a year of biology may be substituted for the year of physics. The courses in mathematics must include Mathematics 0211; and Mathematics 0215 or 0212 or Geology 0310. Geology 0530 or a course in computing or statistics may be used to fulfill the third course requirement. If either Geology 0310 or Geology 0530 is elected for this purpose then it cannot be used for partial fulfillment of the forty-six credits in geology. The courses in chemistry should include Chemistry 0102 for the student without high school chemistry, followed by Chemistry 0107 and 0108. For the student with some knowledge of chemistry the Chemistry 0105 and 0108 sequence is satisfactory. The courses in physics should include Physics 0213, 0214 and 0215; or, for those students with knowledge of calculus (Mathematics 0211 or equivalent), Physics 0217, 0218 and 0219 are recommended. A foreign language is recommended, but not required. As the different branches of geology call for widely different course patterns, particularly in cognate fields, a student intending to major in geology should consult with a member of the geology staff or the department chairman concerning his program at the earliest possible date.

MASTER OF SCIENCE

Plan A — Thirty-six credits in course work plus a thesis.

The graduate program offers a broad foundation in general geology to provide a background for those students who intend to pursue doctoral work or seek professional employment as geologists. Special emphasis is placed on petroleum geology, sedimentation, structural geology, paleontology, igneous or metamorphic petrology, ground water geology and geochemistry.

Department research programs involving areas in Michigan, Massachusetts, Montana, Wyoming and Ontario (Canada) offer opportunities for thesis subjects.

Admission requires an undergraduate major in geology, or a strong background in geology supported by courses in related science fields, with an honor point average of at least 3.0 in the major. The applicant must file three personal letters or be interviewed by the Chairman of the Committee on Graduate Study.

Prerequisites should include mineralogy, paleontology, petrology, sedimentation and structural geology, two quarters of calculus, a year of chemistry and either a year of physics or biology. Deficiencies in prerequisites may be made up concurrently with graduate work. Graduate student programs may be modified by the Geology Department to conform with the needs of individual students. A reading knowledge of French, German, or Russian is desirable.

Candidacy must be established by the time eighteen credits have been earned.

Degree Requirements — The student must have at least six credits of field work or the equivalent. This may be a summer field course at an established university camp, or commercial work, if approved by the Committee on Graduate Study, and it may be a part of the thesis requirement. Two regular 0700 level courses must be taken, excluding 0790, 0791, 0792, 0793, 0794, 0795, 0796, and 0798.

A written comprehensive examination on general geology is required after eighteen graduate credits have been earned. It will be given by the graduate staff in November and May of each academic year. A final oral examination on the thesis is also required.

A geology major may not earn more than eight graduate credits in directed study courses (0790, 0791, 0792, 0793, 0794), or more than eight graduate credits in research courses (0795, 0796).

ASSISTANTSHIPS

The teaching of laboratory sections is considered an important part of the master's program and will be required of all candidates. Teaching assistantships are available to highly qualified students. Applications should be directed in writing to the Chairman of the Committee on Graduate Study.

COURSES OF INSTRUCTION¹ (GEL)

0100. Geology and the Environment. Cr. 3.

Primarily for non-science majors. Geological aspects of man's use of his environment including geological hazards; water; waste disposal; occurrence, use, and depletion of natural resources.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

0101. Principles of Geology I: Physical Science (PHS 0193).
(4,3). Cr. 5.

Material fee: \$10. Introduction to continental drift and plate tectonic theory, geophysics and structure of earth's crust and interior; rocks and minerals; igneous and volcanic geology; work of running water, glaciers, and ground water; geologic time; oceanography. One day field trip. (FWSpSu)

0102. Principles of Geology II. Cr. 4.

Prereq: GEL 0101 or PHS 0193 with a grade of C or better. May be elected concurrently with Geology 0104. Sedimentary rocks and fossils; stratigraphy and structure of rocks; mountain building; sequence of events during history of the earth. A one-day field trip. (FWSp)

0104. Principles of Geology II: Laboratory. Cr. 1.

Prereq: GEL 0101 with grade of C or better; prereq. or coreq: GEL 0102. Exercises on principles discussed in Geology 0102. (FWSp)

0110. Gems and Gem Materials. Cr. 3.

No credit after Geology 0213; no science group requirement credit; no geology major credit. General properties, methods of cutting, occurrence, determination of various minerals and synthetic substances used as gems. (W)

0125. Short Course in Geology. Cr. 1 (Max. 2).

No credit toward geology major. Three and a half week offering commencing at the beginning of a quarter. Topics such as Earthquakes, Exploration of the Moon and Planets, Water Below the Ground, Volcanoes, Continental Drift and Energy Resources will be announced in *Schedule of Classes*. (FWSp)

0126. Short Course in Geology. Cr. 1 (Max. 2).

No credit toward geology major. Three and a half week course commencing the fourth week of a quarter. Topics such as those listed under Geology 0125 will be announced in *Schedule of Classes*. It will be possible to register for this course during the normal registration periods. (FWSp)

0127. Short Course in Geology. Cr. 1 (Max. 2).

No credit toward geology major. Three and a half week course commencing at the seventh week of a quarter. Topics such as those listed under Geology 0125 will be announced in *Schedule of Classes*. It will be possible to register for this course during the normal registration periods. (FWSp)

0197. Honors Geology. Cr. 4.

Open only to students in the Liberal Arts Honors Program. Principles of the subject and their application in specific situations. Topics to be announced in *Schedule of Classes*.

0200. Geology of Michigan. Cr. 4.

Prereq: GEL 0101. Geological history of Michigan from Precambrian to the present; its relationship to the genesis and use of Michigan's natural resources.

0207. Exploration of the Planets. Cr. 4.

Manned and unmanned spacecraft; geology of the planets and theories of their origin and evolution; exploration of space by the United States and the U.S.S.R. (W)

0210. Physical Oceanography. Cr. 3.

Prereq: GEL 0101. Topography and structure of the ocean basins, the processes operating therein; and their historical development through geologic time. (Sp)

0212. Mineralogy I: Crystallography. Cr. 4.

Prereq: one course in high school or college chemistry. External morphology and internal arrangement of minerals. (W)

0213. Mineralogy II: Descriptive. (2,4). Cr. 4.

Prereq: one course in high school or college chemistry. Identification of minerals by means of physical characteristics. Properties and occurrences of major mineral groups. (Sp)

0220. Geomorphology. (3,3). Cr. 4.

Prereq: GEL 0102. Principles underlying development of land forms by geologic agents. (W)

0228. Glacial Geology. (3,2). Cr. 4.

Introduction to glacial geology: types of glaciers, movement and landscape features resulting from glacial erosion and deposition. Glacial features of the Great Lakes Region. (Sp)

0237. Meteorology. Cr. 4.

Atmospheric conditions, weather maps, forecasting. Instruments and records. (W/2 S/2)

0310. Quantitative Problems in Geology. Cr. 4.

No credit after Geology 0535 or 0536. Prereq: MAT 0211 or equiv. Numerical solutions of problems involving tectonics, gravity, magnetism, planetary developments; application of calculus to geological problems; introduction to geophysical theories. (F)

0316. Petrology. (3,3). Cr. 4.

Prereq: GEL 0102 and 0213. Origin, occurrence, alterations, classification, methods for determination of important rocks based on megascopic characteristics. (F)

0330. Structural Geology. (3,3). Cr. 4.

Prereq: GEL 0102, and high school trigonometry or equiv. Description and interpretation of features which result from the origin or deformation of rock masses. (Sp)

0340. Principles of Sedimentology and Stratigraphy. Cr. 4.

Prereq: GEL 0102 or consent of instructor. Processes which produce sediments, environments of deposition, changes after deposition. Relationship between tectonics and sedimentation. Origin of sedimentary strata. Facies and correlations. (F)

0345. Invertebrate Paleontology. (3,3). Cr. 4.

Prereq: GEL 0102 or consent of instructor. Paleontology of invertebrates; evolutionary relationships between taxa and geological applications. (W)

0346. Paleocology. (3,3). Cr. 4.

Prereq: GEL 0102 or consent of instructor. Theory and techniques for the interpretation of paleoenvironments, interpretation of fossil communities. (Sp)

0355. Techniques in Sedimentation and Stratigraphy. (2,5). Cr. 4.

Prereq: GEL 0102 and 0340 or consent of instructor. Techniques of physical and chemical analysis applied to recent sediments and sedimentary rocks. (W)

0365. Field Geology. Cr. 1-10 (Max. 16).

Prereq: consent of instructor. Field studies involving problems in individual geologic mapping and related techniques. (Su)

0390. Directed Study. Cr. 2-6 (Max. 10).

Prereq: consent of instructor and adviser. Primarily for honors students.

0496. Research. Cr. 3-4 (Max. 8).

Prereq: consent of instructor and adviser. Primarily for honors students. Independent laboratory and field work.

0497. Seminar. Cr. 2-4 (Max. 8).

Prereq: consent of instructor.

0501. Earth Science for Teachers: Processes in Geology. Cr. 4 or 6.

Prereq: for science teachers; at least one course each in physics and chemistry. Not open to geology majors. Processes in the Earth's dynamic systems including earth materials, concepts of time, and cyclic changes. (F or Sp)

0502. Earth Science for Teachers: Earth's Biography. Cr. 4.

Prereq: for science teachers; one course in chemistry or physics. Not open to geology majors. Introduction to historical geology at an advanced level; skills used to unravel the records of life and change on Earth. Laboratory sessions. (F or Sp)

0503. Earth Science for Teachers: Geophysics and Oceanography. Cr. 3-4.

Not open to geology majors. Prereq: minor in biology, chemistry or physics. Shape, interior and physical properties of the earth; application of geophysics. Ocean basins, circulation of ocean waters, marine sedimentation.

0504. Earth Science for Teachers: Meteorology. Cr. 4.

Prereq: previous course in physics or chemistry. Introduction to meteorology covering atmospheric circulations, weather maps and forecasting, and weather instruments and charts.

0505. Earth Science for Teachers: Planetology and Space Science. Cr. 4.

Prereq: one course in chemistry or physics. Introduction to the geology of the planets; recent space programs of the U.S.A. and U.S.S.R.

0506. Earth Science for Teachers: Minerals and Rocks. (2,4). Cr. 4.

Prereq: one course in chemistry or physics. No credit after Geology 0212. Not open to geology majors; graduate credit for education majors. Identification and origin of the important economic and rock-forming minerals. Textures, composition, classification and identification of the common rocks. Emphasis on minerals and rocks of Michigan.

0512. Principles and Methods of Geochemistry. (4,3). Cr. 5.

Prereq: GEL 0316, 0340 and two quarters of college chemistry or consent of instructor. Introduction to the chemistry of the earth and to the analytical techniques used by geochemists. Chemistry of common earth materials, reactions within these materials. (F)

0513. Geology of Non-Metallic Resources: Economic Geology. (3,3). Cr. 4.

Prereq: GEL 0316 and 0330. Distribution, origin, occurrence, use of non-metallic mineral resources, mineral fuels, water resources. Identification of non-metallic minerals of economic importance. (W/2)

0514. Geology of Metallic Resources: Economic Geology. (3,3). Cr. 4.

Prereq: GEL 0316 and 0330. Distribution, occurrence, origin, use of metallic mineral resources. Identification of metallic ore minerals. (W/2)

0520. Depositional Systems and Subsurface Geology. (3,3). Cr. 4.

Prereq: GEL 0330, 0340 and 0355. Sedimentary processes and depositional models for terrigenous clastic depositional systems; depositional models applied to surface and subsurface rock units in geologic record to demonstrate techniques for minerals and petroleum exploration.

0530. Statistical and Computer Methods in Geology. (4,3-6). Cr. 4-8.

Prereq: consent of instructor. Open only to geology majors. Principles of statistics, probability, and computer programming; applications to the geological sciences; sampling procedures, populations, confidence limits, regressions, correlations and time series. (W/2)

0535. Introduction to Geophysics. Cr. 4.

Prereq: consent of instructor. Gravitational field and isostasy; magnetic field and paleomagnetism; seismology; internal structure of the earth; absolute age determinations; orbital mechanics. (Sp/2)

0536. Exploration Geophysics. Cr. 4.

Prereq: consent of instructor. Exploration methods for ores, oil and gas. Gravitational methods. Magnetic methods. Electrical methods. Radioactivity methods. Seismic methods. Geophysical well logging. Principles of remote sensing. (Sp/2)

0547. Micropaleontology. (3,3). Cr. 4.

Prereq: GEL 0346. Morphology, taxonomy, and stratigraphic occurrence of invertebrate groups represented by micro-fossils. Modern approaches to the study of these economically important taxa.

0550. Geological Development of North America. (3,3). Cr. 4.

Prereq: GEL 0330, 0340, 0345 or consent of instructor. Tectonic setting, stratigraphy and sedimentological history of North America from a regional viewpoint.

0551. Stratigraphic Paleontology. (3,3). Cr. 4.

Prereq: GEL 0346 or consent of instructor. Type sections, guide fossils, important fauna, sedimentational history of North America.

0552. Geological Development of the World. Cr. 4.

Prereq: GEL 0330 and 0340. Crustal processes through geologic time and the evolution of the continents and oceans into the forms and distribution observed today; geological development of areas outside of North America. (W/2)

0555. Petroleum Geology. (3,3). Cr. 4.

Prereq: GEL 0330 and 0355. Theories regarding origin, migration, accumulation of petroleum and natural gas. Practical problems in exploration and production. Types of oil and gas fields in the United States. (Sp/2)

0560. Coal Geology. Cr. 4.

Prereq: GEL 0340, 0345 and 0355. Sedimentology of coal deposits, environmental analysis of coal bearing sequences, geologic and geographic distribution of coal deposits. Two weekend trips to examine coal deposits in the field. (Sp/2)

0612. Optical Mineralogy. (2,4). Cr. 4.

Prereq: GEL 0316 or consent of instructor. Behavior of crystals in polarized light. Use of polarizing or petrographic microscope and its accessories. Determination of rock-forming minerals. (F)

0616. Volcanology. Cr. 4.

Prereq: GEL 0316. Structure and petrology of active and recent volcanoes; classification of volcanic rocks; active volcanic belts. (Sp/2)

0620. Groundwater Geology. Cr. 4.

Prereq: GEL 0220, 0340. Principles of occurrence and movement; water-bearing characteristics of sediments and rocks and influence of structure; reservoir transmission and water course problems; effects of land occupancy. (Sp/2)

0716. Igneous Petrology. Cr. 4.

Prereq: GEL 0316 and 0612. Composition, classification, origin of igneous rocks. Structures, textures, mineral composition of rocks in thin section using the polarizing microscope. (Sp/2)

0717. Advanced Sedimentology. Cr. 4.

Prereq: GEL 0316. Recent developments in sedimentology. (F/2)

0718. Metamorphic Petrology. (3,3). Cr. 4.

Prereq: GEL 0316 and 0612. Composition, classification and origin of metamorphic rocks. Laboratory involves petrographic studies of textures, structures, and mineral composition of metamorphic rocks in thin section. (Sp/2)

0719. Evolutionary Paleontology. Cr. 4.

Prereq: GEL 0345 and consent of instructor. Extraction of evolutionary principles from study of fossil record. Topics include: speciation, adaptive radiation, extinction, rates of evolution, diversity of the fossil record, application of modern ecologic theory to problems in evolution, historical development of evolutionary concepts. (F/2)

0720. X-ray Techniques in Geology. (3,3). Cr. 4.

Prereq: GEL 0312. The theory and techniques of x-ray analysis as applied to geologic materials. X-ray diffraction and x-ray fluorescence theory. Laboratory consists of practical application in solving geologic problems.

0730. Tectonics. Cr. 4.

Prereq: GEL 0330. Advanced structural geology; relation of structure and sedimentation; major structural features of the world; origin of mountain belts. (W/2)

0736. Oceanography. Cr. 4.

Prereq: consent of instructor. Physical, chemical and biological oceanography; emphasis on the processes and interactions of the sea floor and the benthos. (F/2)

0740. Descriptive Sedimentology. Cr. 4.

Prereq: GEL 0316 and 0340, or consent of instructor. Description and classification of sedimentary rocks. Sediments as concepts and physical objects. Use of stereoscopic microscope in study of surface and subsurface samples. Commercial applications.

0765. Methods of Field Research. Cr. 1-10 (Max. 10).

Prereq: consent of adviser. Field methods in surface and subsurface geology. Usually conducted in field.

0790. Directed Study in Geology. Cr. 2-8 (Max. 8).

Prereq: consent of instructor, adviser, and graduate officer.

0791. Directed Study in Paleontology. (0,4-16). Cr. 2-8.

Prereq: consent of instructor, adviser, and graduate officer.

0792. Directed Study in Petrology. (0,4-16). Cr. 2-8.

Prereq: consent of instructor, adviser, and graduate officer.

0793. Directed Study in Pleistocene Geology. (0,4-16). Cr. 2-8.

Prereq: consent of instructor, adviser, and graduate officer.

0794. Directed Study in Geochemistry. (0,4-16). Cr. 2-8.

Prereq: consent of instructor, adviser, and graduate officer.

**0795. Research in Stratigraphy and Sedimentation. (0,4-16).
Cr. 3-4 (Max. 8).**

Prereq: consent of instructor and adviser. Independent work in laboratory or field.

0796. Research in Geology. Cr. 3-4 (Max. 8).

Prereq: consent of instructor and adviser. Independent work in laboratory or field.

0797. Seminar in Geology. Cr. 2-4 (Max. 8).

Prereq: consent of instructor. Selected fields such as tectonics, volcanology, oceanography, paleontology, groundwater geology. Topics to be announced in *Schedule of Classes*.

0798. Colloquium in Geology. Cr. 1 (Max. 3).

Prereq: graduate standing in geology. Offered for S and U grades only. Weekly programs by visiting lecturers, graduate staff and graduate students. (FSp)

**0899. Master's Thesis Research and Direction. Cr. 2-12
(12 required).**

Prereq: consent of adviser.

GREEK AND LATIN LANGUAGES AND LITERATURES

Office: 431 Manoogian Hall

Chairman: Ernest J. Ament

PROFESSOR

Richard W. Minadeo

ASSOCIATE PROFESSOR

Ernest J. Ament

ASSISTANT PROFESSORS

Harry B. Evans, Jr., Joel B. Itzkowitz, Ruth W. Todd,
Kenneth R. Walters, Nancy Wiggers

INSTRUCTOR

Kathleen McNamee

DEGREE PROGRAMS

*Bachelor of Arts — with a major in classics,
Greek, or Latin*

*Bachelor of Arts — with a major in classical
civilization*

Master of Arts — with a major in classics or Latin

*Graduate minor or cognate credit may be earned in
classics in English translation and in Greek.*

The primary function of the department is the presentation of the Greco-Roman origins of European civilization through courses in both language and literature. These courses expose the student to ancient classics which for more than two millennia have played a central role in the education of Western man. Courses offered by the department are designed to meet the needs not only of students desiring to fulfill a foreign language requirement but also of those who wish to increase their knowledge and appreciation of their cultural heritage and of those who desire to participate in the continuation of this tradition through a career in teaching.

American School of Classical Studies at Athens

The department is a member of the American School of Classical Studies at Athens with the rights and benefits that accrue therefrom. For students of the department these benefits include free tuition when attending that School in Athens and eligibility for the scholarships, fellowships and grants which the School offers. For further information consult with the department advisers.

Modern Greek Studies Scholarship

The Ministry of Culture and Science of the Hellenic Republic annually makes available one scholarship to a student of Modern Greek language and literature. The purpose of the scholarship is to enable the student to acquire a first-hand knowledge of Greece, its people and their way of life and to establish personal contacts with cultural and scientific personalities in Greece. The annual summer program includes tours of archeological sites in Greece, visits to some of the Aegean Islands and attendance at such cultural events as the Epidauros Festival and the Athens Festival. For further information consult with the department advisers.

BACHELOR OF ARTS

A student who wishes to major or minor in the department should plan his program with the departmental major adviser as soon as possible after entering the University. Each program is arranged individually to combine the most varied advantages consistent with the student's interests and purposes, such as the desire to combine majors and minors for teacher certification, to acquire language skills needed for technical work in other areas of study, to enrich professional background, or to broaden general cultural development.

Combined Curriculum for Secondary Teaching—Students who are preparing to teach Latin in the secondary schools and who wish to obtain a B.A. degree with a major in Latin must complete the major as outlined below and the requirements for this curriculum set by the College of Education. For further information on this curriculum, see "Secondary Teaching" in the Undergraduate Curricula section of this bulletin, page 239.

Recommended Cognate Courses—All majors in the fields covered by the department are strongly urged to take as much work as possible in the literatures of other languages, including English, as well as Art History 0516 (Etruscan and Roman Art), History 0533 (Greece) and 0534 (Rome), and Philosophy 0370 (Aesthetics). Philosophy 0541 (Plato) and 0542 (Aristotle) are also recommended as cognates for Greek and classics majors.

Major Requirements in Classics—A major in classics consists of twenty-four to thirty-six credits of concentration in either Greek or Latin, exclusive of Greek or Latin 0101, 0102, and 0103, plus twenty credits of concentration in the other language, and Classics 0509 and 0510. For recommended cognates, see above.

Major Requirements in Greek—A major in Greek consists of forty-eight credits, exclusive of Greek 0101, 0102, and 0103, and including Classics 0509, 0510, and 0621. Potential majors are also encouraged to elect Classics 0200 during the freshman or sophomore year. For recommended cognates, see above.

Major Requirements in Latin—A major in Latin consists of forty-eight credits, exclusive of Latin 0101, 0102, 0103, and including Classics 0509, 0510 and 0622.

Potential majors are also encouraged to elect Classics 0200 (Greek Mythology) during the freshman or sophomore year.

Major Requirements in Classical Civilization — The major in classical civilization is administered by this department in cooperation with the Departments of Anthropology, Art History, English, History, Humanities, Philosophy, and Political Science. It is designed for those students with interests in the development of the classical tradition in Western culture. It offers broad general education without intensive work in ancient languages to students with graduate aspirations in the humanities or professions such as law or medicine. The breadth of this major also facilitates completion of a second major simultaneously, or heavier concentration in specific areas included in this one.

Finally, upon completing this interdisciplinary major, the student will have fulfilled the Liberal Arts Foreign Language and Humanities Requirements and, with the correct electives, the Social Science Requirement.

Students interested in this major should contact the Department Undergraduate Adviser or the Department Chairperson.

Core Requirements:

1. Fulfillment of the Foreign Language Group Requirement in either Greek or Latin (16 credits maximum).
2. Classics 0509 (Greek Origins of Western Thought), 0510 (Roman Origins of Western Thought). *Two* courses from the following: Classic 0621 (Greek Studies Seminar), 0622 (Roman Studies Seminar), 0626 (Studies in Mythology) (16 credits).
(Etruscan and Roman Art) (8 credits).
4. History 0533 (History of Greece), 0534 (History of Rome) (8 credits).
5. Philosophy 0203 (Greek Philosophy) *or* Classics 0300 (The Greek Philosophers) (4 credits).

Electives — 16-28 credits, with courses required from at least *two* departments.

Choose from the following electives: Up to twelve credits in Greek or Latin beyond 0201; Anthropology 0531 (Language and Culture); Art History 0540 (Early Christian and Byzantine Art); Classics 0310 (Roman Law), 0319 (Women in Classical Antiquity), 0325 (Urban Study of Ancient Rome), 0519 (Greek and Roman Life); English 0305 (Introduction to Literary Criticism), 0330 (Approaches to Comparative Literature); History 0535 (The Hellenistic Period), 0536 (Medieval Civilization I), 0537 (Medieval Civilization II), 0559 (Byzantine History I), 0560 (Byzantine History II); Humanities 0533 (The Arts of Western Culture: Classical Period); Political Science 0561 (Origins of Western Political Thought); Philosophy 0370 (Aesthetics), 0541 (Plato), 0542 (Aristotle), 0543 (Medieval Philosophy).

total Hour Requirements for the Major:

4 credits, exclusive of the Foreign Language Requirement with 36 credits required in the core area and 16-28 in electives.

Program Requirements — Qualified majors may apply for admission to the departmental Honors Program. Only students who have demonstrated superior ability in the classical languages and/or literature and who shows

promise of acquiring greater breadth and depth of knowledge through tutorial study will be admitted to the program. As preparation for admission the student is required during the freshman and sophomore years to acquire basic knowledge of one of the languages (ideally, of both) and is encouraged to elect Classics 0200 (Greek Mythology).

Once the Honors candidate has been admitted to the program (normally at the end of the sophomore year) he shall fulfill the normal requirements for the Department major he has elected. The required courses Classics 0509 and 0510, however, should be elected during the junior year, while in the senior year he should elect a minimum of twelve credits in Classics 0490, which will prepare and guide him in the writing of a Senior Honors Essay. One of the 0400 level interdisciplinary seminars offered by the Honors Program must also be completed. Finally, written and oral comprehensive examinations must be successfully completed in the senior year.

Eligible students who are interested in the program should consult the Department honors adviser. The diploma of a successful honors candidate will read "Graduation with honors in Classics" (or "Greek" or "Latin" or "Classical Civilization").

MASTER OF ARTS IN CLASSICS

Plan A — Forty credits in course work plus a thesis.

Plan B — Forty-four credits in course work plus an essay.

Plan C — Forty-eight credits in course work.

Admission — The applicant must present an undergraduate major in Latin, Greek or Classics, or receive the consent of the graduate adviser for graduate work.

Candidacy must be established by the time eighteen credits have been earned.

Degree Requirements — A minimum of twenty-four credits are required in the one language and a minimum of sixteen credits in the other. A maximum of eight credits in cognate or related fields may be taken under Plans B and C. Of courses elected in the major language a minimum of two must be at the 0700 level, exclusive of thesis or essay credits under Plans A and B. A final examination is required.

MASTER OF ARTS IN LATIN

Plan A — Thirty-six credits in course work plus a thesis.

Plan B — Forty-four credits in course work plus an essay.

Plan C — Forty-eight credits in course work.

Admission — The applicant must present an undergraduate major in Latin or receive the consent of the graduate adviser for graduate work.

Candidacy must be established by the time eighteen credits have been earned.

Degree Requirements — Under Plans A or B course work must include at least twenty-eight credits in Latin exclusive

of Latin 0799 or 0899, and including eight credits in courses numbered 0700 or higher. A final examination is required.

Under Plan C course work must include at least twenty-eight credits in Latin, including either Latin 0519 or 0520 and at least eight credits in courses numbered 0700 or higher and Classics 0509. A final examination is required.

ASSISTANTSHIPS AND SCHOLARSHIPS

Teaching assistantships and scholarships are available to qualified graduate students. Applications for scholarships should be made directly to the Office for Graduate Studies, but applications for teaching assistantships should be submitted to the graduate adviser in the department. Applications for teaching assistantships are due by March 1.

COURSES OF INSTRUCTION¹

Classics in English Translation (CLA)

0100. Introduction to Greek Tragedy. Cr. 4.

The dramatic and literary qualities of representative plays of Aeschylus, Sophocles and Euripides. The origin and development of Greek tragedy related to the enduring quality and contemporary relevance of these dramas.

0101. Introduction to the Epics of Homer and Vergil. Cr. 4.

The hero, heroism, and other themes reflected in the epics of Homer and Vergil. Other ancient authors may be read for comparison.

0123. Etymology: English Words from Greek and Latin. Cr. 4.

Formation and structure of English words derived from Greek and Latin roots, including legal, medical and general scientific vocabulary.

0200. Greek Mythology. Cr. 4.

Typical myths related to religion, custom, ethics, philosophy, art, literature.

0300. The Greek Philosophers. Cr. 4.

Origin and development of Greek philosophical thought from the pre-Socratics through the age of Aristotle. Selected authors and works.

0310. Roman Law. Cr. 4.

Historical development from the Twelve Tables (5th century B.C.) to the *Digest* of Justinian (6th century A.D.); appraisal of the Classical Law (1st century A.D. to 3rd century A.D.), including status, slavery, property, contracts, and testamentary law; special attention to procedures. No special legal knowledge required.

0319. Women in Classical Antiquity. Cr. 4.

Development of attitudes toward women from the Bronze Age through the fully developed patriarchal societies of Greece and Rome based on literary, archaeological, and historical evidence.

0325. Urban Study of Ancient Rome. Cr. 4.

Development of Rome as an ancient urban center from the late

Stone Age to the fourth century A.D., based on literary, historical and archaeological evidence.

†0509. Greek Origins of Western Thought. Cr. 4.

Survey of classical Greek literature from the age of heroes through the birth of logic and history to the imitative art of the Alexandrian revival.

†0510. Roman Origins of Western Thought. Cr. 4.

Survey of Roman literature from the period of Italic Dominion through the late Republic and Empire.

†0519. Greek and Roman Life. Cr. 4.

Unit studies reconstructing the development and physical, social and moral milieu of Greco-Roman society at various periods.

0590. Directed Study. Cr. 1-4 (Max. 8).

Prereq: undergrad., at least two classics courses and written consent of chairman; grad., written consent of chairman and graduate officer. Directed independent research in depth on a topic or author treated in the regular classics offerings, culminating in a course paper.

†0621. Greek Studies Seminar. Cr. 4 (Max. 8).

Prereq: CLA 0509 and consent of the instructor. Intensive study of some aspects of Greek civilization. Topics to be drawn from the fields of literature, archaeology and social history. All readings in English. Topics to be announced in *Schedule of Classes*.

†0622. Roman Studies Seminar. Cr. 4 (Max. 8).

Prereq: CLA 0510 and consent of instructor. Selected topics from a single author or genre to aspects of classical civilization are to be announced in *Schedule of Classes*.

†0626. Studies in Mythology. Cr. 4 (Max. 8).

Prereq: CLA 0200 and consent of instructor. Significant themes ranging from myth in literature, art and religion to psychoanalysis of myth.

0650. Classics in Secondary Schools. Cr. 1-3 (Max. 9).

Prereq: written consent of chairman. Continuing series of summer seminars for current or prospective secondary school teachers.

0790. Directed Readings. Cr. 2 (Max. 6).

Prereq: written consent of chairman and graduate officer. Open only to graduate majors who assist in teaching of Classics courses with only two credits allowed per subject area. Supervised supplementary reading in conjunction with assisting in a Classics course.

Classics — Honors Program

0490. Senior Honors Tutorial. Cr. 4-8 (Max. 24).

Prereq: consent of departmental Honors adviser. Open only to students in departmental Honors Program. Independent study under the direction of the Honors adviser, including research for Senior Honors Essay.

Greek (GRK)

Ancient Greek

0101. Elementary Greek. Cr. 4.

Basic vocabulary, forms, grammar.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

0102. Elementary Greek. Cr. 4.

Prereq: GRK 0101. Continuation of Greek 0101.

0103. Elementary Greek. Cr. 4.

Prereq: GRK 0102. Continuation of Greek 0102. Emphasis on reading ability.

0199. Intensive Introductory Greek. Cr. 12.

Basic vocabulary, forms and grammar of classical Greek leading to the reading of continuous Greek prose passages.

0201. Classical Greek Prose. Cr. 4.

Prereq: GRK 0103 or 0199. Selections illustrative of various types of prose.

0202. Introduction to Homer. Cr. 4.

Prereq: GRK 0201 or equiv. Reading of selected passages from the *Iliad* and the *Odyssey*, study of fundamentals of Homeric Greek.

0203. New Testament. Cr. 4.

Prereq: GRK 0201 or equiv. Typical examples of textual and interpretive variants; emphasis on reading ability.

0301. Greek Tragedy. Cr. 4.

Prereq: GRK 0203 or consent of instructor. One tragedy of Euripides, supplemented by selections from the dramas of Aeschylus and Sophocles.

0302. Greek Lyric Poetry. Cr. 4.

Prereq: GRK 0203 or consent of instructor. Personal lyric poetry as the reflection of the individual in post-Homeric Greece.

0303. The Greek Historians. Cr. 4.

Prereq: GRK 0203 or consent of instructor. Representative selections from Herodotus or Thucydides chosen to illustrate the author's approach to the writing of history and to illuminate our understanding of fifth century Athens.

0500. Intensive Greek for Graduate Students. Cr. 4.

Prereq: graduate standing. Introduction to basic vocabulary, forms and grammar of classical Greek leading to the reading of continuous Greek prose passages.

0583. Greek Prose Composition. Cr. 4.

Prereq: GRK 0203 or consent of instructor. Practice in the essentials of writing idiomatic and stylistic Greek prose. Supplementary readings in Greek for imitation.

0584. Attic Orators. Cr. 4.

Prereq: GRK 0203 or consent of instructor. Development of Greek prose style and rhetoric in selected works of the Attic orators.

0585. Greek Comedy. Cr. 4.

Prereq: GRK 0203 or consent of instructor. Representative comedies of Old, Middle, or New Greek Comedy to show the origin, development, and social implications of the genre.

0586. Greek Literature of the Hellenistic Period. Cr. 4.

Prereq: GRK 0203 or consent of instructor. An introduction to writers as Apollonius of Rhodes, Callimachus and Theocritus.

Directed Study. Cr. 1-4 (Max. 8).

undergrad., written consent of chairman; grad., consent of advisor and graduate officer.

Studies in Greek Poetry. Cr. 4 (Max. 12).

undergrad. major in classics or Greek or consent of

instructor. A major poet or genre of poetry. Topics to be announced in *Schedule of Classes*.

0782. Studies in Greek Prose. Cr. 4 (Max. 12).

Prereq: an undergrad. major in classics or Greek or consent of instructor. A major prose author or genre. Topics to be announced in *Schedule of Classes*.

0796. Research Problems. Cr. 1-4 (Max. 8).

Prereq: an undergrad. major in classics or Greek, consent of adviser.

0799. Master's Essay Direction. Cr. 3-4.

Prereq: consent of adviser.

0899. Master's Thesis Research and Direction. Cr. 1-12 (12 required).

Prereq: consent of adviser.

Modern Greek

0111. Elementary Modern Greek. Cr. 4.

Training in pronunciation, conversation, and reading.

0112. Elementary Modern Greek. Cr. 4.

Prereq: GRK 0111 or equiv. Continuation of Greek 0111.

0113. Elementary Modern Greek. Cr. 4.

Prereq: GRK 0112 or equiv. Continuation of Greek 0112 with greater emphasis on reading ability.

0211. Intermediate Modern Greek. Cr. 4.

Prereq: GRK 0113 or equiv. Review of grammar, practice in oral and written modern Greek, based on readings in modern Greek literature.

0212. Intermediate Modern Greek: Speaking and Writing. Cr. 4.

Prereq: GRK 0211 or equiv. Development of language skills; based on reading from contemporary materials. Conducted entirely in Greek.

0261. Readings in Modern Greek Literature. Cr. 4.

Prereq: GRK 0211 or equiv. Selections from major contemporary authors.

0310. Survey of Modern Greek Literature I: From the Beginnings to the Eighteenth Century. Cr. 4.

Prereq: GRK 0261. Selected readings of major Greek writers from the tenth century through the Fall of Constantinople down to the eighteenth century; language and stylistic analysis.

0311. Survey of Modern Greek Literature II: Nineteenth and Twentieth Centuries. Cr. 4.

Prereq: GRK 0261. Selected readings; analysis of language and style.

0361. Kazantzakis and Seferis. Cr. 4.

Prereq: GRK 0261. Representative selections of the prose writings of Nikos Kazantzakis and the poetry of George Seferis.

Latin (LAT)

0101. Elementary Latin. Cr. 4.

Basic vocabulary, forms, grammar.

0102. Elementary Latin. Cr. 4.

Prereq: LAT 0101. Continuation of Latin 0101.

0103. Elementary Latin. Cr. 4.

Prereq: LAT 0102. Continuation of Latin 0102. Emphasis on reading ability.

0150. Intensive Latin Review. Cr. 5.

Prereq: two years of high school Latin or consent of instructor. Open as a beginning language only to majors in another language and to graduate students. Intensive and accelerated review of Latin fundamentals.

0199. Intensive Introductory Latin. Cr. 12.

Basic vocabulary, forms and grammar of Latin leading to the reading of continuous Latin prose passages.

NOTE: Latin 0201, 0202, and 0203 are not to be considered as equivalents of third- and fourth-year high school Latin.

0201. Intermediate Latin. Cr. 4.

Prereq: LAT 0103 or 0150 or 0199 or placement. Selections from prose fiction.

0202. Intermediate Latin. Cr. 4.

Prereq: LAT 0150 or 0201 or placement. Selections from Roman comedy.

0203. Intermediate Latin. Cr. 4.

Prereq: LAT 0201 or placement. Selections from poetry.

0301. Latin Prose Authors. Cr. 4.

Prereq: LAT 0203 or consent of instructor. Selections from Sallust, Nepos, Livy, Suetonius, or letters of Cicero or Pliny.

0302. Catullus and Martial. Cr. 4.

Prereq: LAT 0203 or consent of instructor. Selections from the simpler poems of Catullus and Martial.

0303. Elements of Latin Prose Composition. Cr. 4.

Prereq: LAT 0203 or consent of instructor. Exercises in writing Latin, based on a systematic review of functional grammar.

0500. Intensive Latin for Graduate Students. (12,0). Cr. 4.

Basic vocabulary, forms and grammar of Latin leading to the reading of continuous Latin prose passages.

0519. Survey of Latin Literature I. Cr. 4.

Prereq: LAT 0301 or equiv. Extensive readings from Republican and Early Imperial periods; fundamental stylistic analysis.

0520. Survey of Latin Literature II. Cr. 4.

Prereq: LAT 0301 or equiv. Extensive readings from late Augustan and Silver periods through the *Confessions* of St. Augustine; stylistic analysis.

0582. Roman Philosophy. Cr. 4.

Prereq: LAT 0301 or equiv. Selections from the philosophical writings of Lucretius, Seneca, and Cicero.

0584. Cicero. Cr. 4.

Prereq: LAT 0301 or equiv. Representative selections.

0585. Vergil. Cr. 4.

Prereq: LAT 0301, 0302, 0303. Representative selections.

0586. Horace. Cr. 4.

Prereq: LAT 0301, 0302, 0303. Representative selections.

0590. Directed Study. Cr. 1-4 (Max. 8).

Prereq: undergrad., written consent of chairman; grad., written consent of chairman and graduate officer.

0619. Teaching Latin Heritage in an Urban Setting. Cr. 4.

Prereq: undergrad. major in Latin or consent of instructor. Methods and materials for teaching Latin heritage in an urban secondary school.

0684. Roman Drama. Cr. 4.

Prereq: LAT 0301, 0302, 0303. Selected plays of Plautus, Terence, and Seneca.

0686. Roman Elegy. Cr. 4.

Prereq: LAT 0301 or equiv. Poems of Tibullus, Propertius, Ovid.

0687. Advanced Prose Composition. Cr. 4.

Prereq: LAT 0301 or equiv. Writing of continuous Latin prose.

0688. Ovid's Metamorphoses. Cr. 4.

Prereq: LAT 0301 or equiv. Intensive study of the style and structure of the *Metamorphoses*.

0782. Studies in Latin Prose. Cr. 4 (Max. 12).

Prereq: major in Classics or Latin or consent of instructor. A major prose author or prose genre. Topics to be announced in *Schedule of Classes*.

0783. Propertius. Cr. 4.

Prereq: an undergrad. major in Latin. Intensive study of the poetry of Propertius.

0784. Tacitus. Cr. 4.

Prereq: an undergrad. major in Latin. Intensive study of selections from the works of Tacitus.

0785. Lucretius. Cr. 4.

Prereq: an undergrad. major in Latin. Intensive study of the *De Rerum Natura*.

0786. Latin Pastoral Poetry. Cr. 4.

Prereq: an undergrad. major in Latin. *Eclogues* and *Georgics* of Vergil.

0787. Roman Satire. Cr. 4.

Prereq: an undergrad. major in Latin. Satires of Horace and Juvenal.

0788. The Roman Revolution. Cr. 4.

Prereq: an undergrad. major in Latin. Intensive study in historical problems related to the fall of the Roman Republic and the establishment of the Empire.

0796. Research Problems. Cr. 1-4 (Max. 8).

Prereq: an undergrad. major in Latin, consent of adviser.

0799. Master's Essay Direction. Cr. 3-4.

Prereq: consent of adviser.

0899. Master's Thesis Research and Direction. Cr. 1-12 (12 required).

Prereq: consent of adviser.

HISTORY

Office: 838 Mackenzie Hall

Chairman: William J. Brazill, Jr.

PROFESSORS

William J. Bossenbrook (Emeritus), William J. Brazill, Jr., R. V. Burks, Milton Covensky, Corinne Gilb, Sidney Glazer (Emeritus), Edwin C. Hall (Emeritus), S. William Halperin (Emeritus), Winfred A. Harbison (Emeritus), Finley A. Hooper, †Alfred H. Kelly, Harry Magoulias, Philip P. Mason, T. F. Mayer-Oakes, Richard D. Miles, Raymond C. Miller (Emeritus), Melvin Small, Goldwin Smith, Margaret Sterne (Emeritus), Robert C. Walton

ASSOCIATE PROFESSORS

C. Norman Guice, Christopher H. Johnson, Alan Raucher, Samuel F. Scott, Stanley D. Solvick

ASSISTANT PROFESSORS

Robert J. Abbott, Effie Ambler, Frederic B. Burnham, Kermit Hall, F. Richard Place, Monica Schuler, Stanley Shapiro, Anne Y. Zimmer

INSTRUCTORS

Marc Kruman, Tyrone Tillery

COOPERATING FACULTY

Wayne Andrews, Professor of Art History

DEGREE PROGRAMS

Bachelor of Arts — with a major in history

Master of Arts — with a major in history

Doctor of Philosophy — with specializations in Europe, the Americas, and archival administration.

BACHELOR OF ARTS

Major Requirements — The minimum requirement for a major in history is forty-eight credits. All transfer students must complete a minimum of twenty advanced credits in the department for major certification. The department advisers will be pleased to help each major plan a program to fit the student's special needs and background.

Recommended Cognate Courses — Cognates for history include anthropology, economics, geography, humanities, science, and sociology. The attention of students of interest is directed also to the history of philosophy, the history of art, and the history of music, as appropriate electives.

Pre-Law Program — Students who plan to apply for admission to Law School should complete the following major requirements: History 0110, 0120, 0130, 0131; History 0105, 0204 and 0205 or 0255, 0256 and one other sophomore level course; and twenty credits in advanced courses. The following courses are strongly recommended for pre-law students: History 0516, 0517, 0553 and 0554 (see also suggested pre-Law curriculum in the Liberal Arts Undergraduate Curricula).

The University requirement in American government may be satisfied by the election of History 0204 and 0205; or History 0516 and 0517.

GRADUATE PROGRAMS

The graduate program offers advanced training in history for qualified students who wish to develop the analytical and research skills appropriate to the study of history. Basic to all graduate programs in this discipline is an emphasis upon the location and classification of historical evidence, the interpretation of this evidence, and its synthesis in written or oral form. The purpose of historical research and writing is to advance our understanding of the past, to place the problems of the contemporary world in useful perspective, and to furnish insight into the future.

Advanced degrees in history serve several audiences, chief among them being those intent upon a teaching career at the secondary, junior college or university level; those interested in employments in government research, as foreign service officers, or in the management of archival resources; and those who seek training in history for its value as a means of understanding the human world about us.

Both the M.A. and the Ph.D. programs provide sufficient flexibility to meet the professional needs of these various audiences at the differing levels of achievement. All M.A. students must show mastery of their subject matter and demonstrate an ability to do basic historical research. Attainment of the Ph.D. requires the ability to use such research tools as statistics and foreign languages as well as extensive mastery of a series of historical fields and a demonstrated capacity for original research. The doctoral dissertation is the culmination of the historian's training and constitutes an enlargement of our knowledge and understanding of history. Normally two years of study will be required for the completion of the M.A. while alternatively fulfillment of all requirements for the Ph.D. will usually involve four years of full-time study.

MASTER OF ARTS

Admissions — Applicants for the M.A. program in history should apply to the Graduate Admissions Office in the Administrative Services Building. To be admitted, the applicant must have adequate undergraduate preparation in either the social sciences or the humanities. The department requires that prior to admission all applicants take the Aptitude and Advanced sections of the Graduate Record Examination, submit at least two letters of recommendation; and, provide copies of transcripts from each college or university previously attended.

Students entering the M.A. Program in History will be required to take History 0787 (Methods and Research in History) in the first quarter of work or as soon thereafter as the course is offered.

Candidacy — Candidacy must be established and an official *Plan of Work* filed with the Department by the time sixteen credits have been earned.

Degree Requirements — A total of forty-eight credits is required for the Master's degree in history. These credits may be earned either under Plan A or Plan B, depending upon the wishes of the student and the advice of the department.

Under Plan A the student must complete thirty-six credits in graduate course work, of which at least twenty-eight must be taken in history, and write a thesis, for which he receives twelve hours of credit. Under Plan B the student must complete forty-four credits in graduate course work, including at least thirty-two credits in history, and write an essay, for which he or she receives four credits. Both the thesis and the essay will be submitted to a second reader.

Regardless of which Plan the student chooses to follow, he or she must (1) distribute his or her course work among two fields of history (for example, United States, Modern Europe, Medieval, Ancient); (2) earn a minimum of twelve credits in courses numbered 0700 or above, at least four of which must be in seminars; (3) pass a written comprehensive examination in the two fields of study; and (4) pass a final oral examination on the thesis or essay. Under special circumstances, the graduate committee may waive either of the last two requirements.

M.A. Programs in Archives and Law — The Department administers a graduate program in archival administration in cooperation with the Reuther Library of Labor and Urban Affairs. There is also a joint M.A.-J.D. degree program operated in cooperation with the Law School. Students interested in either program should contact the department for a current brochure describing the goals and requirements for these degrees.

DOCTOR OF PHILOSOPHY

Admissions — Applicants for the Ph.D. program should apply directly to the chairman of the department. In addition to having completed an B.A. degree at an accredited college or university, applicants must supply the chairman with copies of all appropriate transcripts and with three letters of recommendation. Furthermore, applicants must have taken the aptitude and advanced sections of the graduate record examination in such time as to make their score available to the chairman.

After careful screening the department will admit a limited number of highly qualified students to the doctoral program. Normally those so admitted will also be awarded teaching assistantships. The deadline for applications is March 1 and admission is always to the fall quarter.

Degree Requirements — The student should consult the university regulations governing study for the doctorate in philosophy. For a detailed description of the program in history, see the department's Ph.D. brochure.

Upon entering the program students will be expected to offer a concrete plan for satisfying the language requirement. They will be expected to demonstrate a reading knowledge of two languages to the appropriate University language department before scheduling the preliminary oral and written examinations. In special circumstances and with permission of the graduate committee, a student may elect to present only one foreign language either by demonstrating in-depth mastery of that language or by substitution for the second language of certain specific auxiliary skills, such as statistics or archival methods. Those entering the program with an M.A. degree will be expected to have already satisfied the requirements in one language.

Upon entering, students will also be expected to select, in consultation with the department chairman, a faculty member who will serve as the student's adviser, both in general and with respect to his dissertation. In consultation with his adviser the student will then develop a course of study listing the courses that will prepare him in three fields of history (including a field in which the dissertation will be written), and a related cognate field outside the department. In consultation with the adviser and the departmental graduate committee the student may select a specially arranged field of a topical nature as a substitute for one of the three fields in history.

The standard fields of study within the department are: (1) ancient, (2) medieval and Byzantine, (3) early modern Europe, (4) modern Europe, (5) Great Britain and the British Empire, (6) Russia and the Soviet Union, (7) central and eastern Europe, (8) Africa, (9) East Asia, (10) Latin America, (11) North America, (12) archival methods and (13) urban history. In addition to satisfying the field requirements, each student must fulfill the University requirements of a total of forty-five graduate credits in studies courses and seminars in history (numbered 0700 and above); at least twelve of these credits must lie in seminar work.

Admission to Candidacy requires completion of the following requirements:

- (1) Demonstrated reading knowledge of two foreign languages appropriate to the student's area of specialization, or such alternative arrangement as the Graduate Committee may approve in accordance with the paragraph on language requirements above.
- (2) Filing of an approved plan of work with the graduate division.
- (3) Completion of departmental and graduate division residence requirements.
- (4) Completion of field requirements with an overall honor point average of 3.5 (4 stands for A).
- (5) Satisfactory completion of written and oral qualifying examinations in three history fields and one cognate.

The dissertation is a work of original historical research and presentation on a topic selected by the student with the approval of the student's adviser and accepted as successful by the adviser, a second reader to be selected by the chairman of the department, and the dissertation committee. Upon completion of the dissertation the student be required to defend it before the department, which may be appropriately enlarged as occasion may demand. The student submit the dissertation for certification to the division.

COURSES OF INSTRUCTION' (HIS)

0100. On the Brink of History: The Contemporary World. Cr. 4.
Contemporary world problems in historical perspective; understanding of the world of today and tomorrow.

0105. Contemporary American Civilization: The United States Since World War II. Cr. 4.
Recent American ideas, institutions and movements for social change.

0110. The Ancient World. Cr. 4.
From prehistory to the breakup of the Mediterranean unity.

0120. The Medieval World: 300-1500. Cr. 4.
Medieval civilization from the barbarian invasions to the Renaissance.

0130. Modern European Civilization, 1500-1848. Cr. 4.
European ideas and institutions from the Reformation to the Age of the Revolution.

0131. Recent European Civilization, 1848 to the Present. Cr. 4.
European experience in the contemporary world.

0140. African Civilization to 1800. Cr. 4.
Culture, commerce and state-building.

0141. African Civilization Since 1800. Cr. 4.
Imperialism, independence and neo-colonialism.

0200. (U S 0200) Introduction of Urban Studies (ECO 0200) (GEG 0203) (P S 0200). Cr. 4.
Prereq: sophomore standing. Urban phenomena, past and present; quality and nature of urban life; major concerns of urban areas; perspectives and techniques of various urban-related disciplines. Topics to be announced in *Schedule of Classes*.

0204. American Foundations: United States from Origins to Reconstruction. Cr. 4.
American experience with colonialism, revolution and nation-building.

0205. Modern America: United States from the Gilded Age through World War II. Cr. 4.
Industrialization, urbanization and emergence as a world power.

0224. History of Michigan. Cr. 4.
Prereq: sophomore standing. Political, social, economic development of the State, from French explorations to the present.

0255. History of England to 1603. Cr. 4.
Prereq: sophomore standing. Development of British civilization.

0256. History of England and Great Britain since 1603. Cr. 4.
Prereq: sophomore standing. Political, social, economic, literary development.

†661 for interpretation of numbering system, signs and symbols.

0281. Asian Civilization Survey I: Formative Period. Cr. 4.
Introduction to historical developments and major characteristics of institutions and thought of the chief civilizations of South and East Asia centering on India and China to about A.D. 300.

0282. Asian Civilization Survey II: Golden Ages and Expansion. Cr. 4.
India from the Gupta to the Mughal periods; China from the Han to the Ch'ing empires. Traditions of Southeast Asia, of Korea, and of Japan to about A.D. 1700.

0283. Asian Civilization Survey III: Confrontation with the West. Cr. 4.
European colonial expansion into South and Southeast Asia; the differing East Asian responses to European stimuli to modernization since the seventeenth century.

0287. Transformation of Western Society. Cr. 4.
Pre-modern society in the West with particular attention to the nature of the family, social groups, work and authority. Shift from continuity to change in mid-eighteenth century.

0310. Introduction to the Philosophy and Discipline of History. Cr. 4.
Philosophy and history of history.

0314. The Black Experience in America I: 1619-1865. Cr. 4.
African origins of the American black; transition in status from freedom to slavery; status of the black under slavery.

0315. The Black Experience in America II: 1865 to the Present. Cr. 4.
The black in national life since emancipation.

0320. Slavery, Racism and Anti-Semitism II. Cr. 4.
Comparative study of slavery, ethnic oppression and race relations in the ancient and medieval world as a background for the main focus; history of slavery, racial attitudes and anti-semitism in the West from the sixteenth to the nineteenth centuries.

0321. Slavery, Racism and Anti-Semitism II. Cr. 4.
Modern racist theory and practice in their social, economic and political contexts culminating in Nazi racial policy, racism and ethnic prejudice in modern American institutions.

0330. History of War in the Twentieth Century. Cr. 4.
History of the sociological, psychological and economic impact of war on the life of the average citizen in the twentieth century.

0350. An Historical View of Labor and Work in America. Cr. 4.
Work and labor in America within an historical framework; contemporary issues.

0377. (ENG 0377) Women's Studies I: Women's Lives. Cr. 4 (Max. 8).
Autobiographical and biographical materials to gain an understanding of individual women's lives within a cultural milieu.

0396. Pro-Seminar in African History. Cr. 4.
Prereq: HIS 0140 and 0141 or equiv.; or consent of instructor. Selected topics in nineteenth and twentieth century African history; resistance to imperialism; the colonial experience.

0397. Pro-Seminar in European History. Cr. 4 (Max. 8).
Prereq: consent of instructor. Honors work.

0398. Pro-Seminar in American History. Cr. 4 (Max. 8).

Prereq: consent of instructor. Honors work.

0490. Directed Study. Cr. 2-4 (Max. 8).

Prereq: consent of chairman.

0495. Honors Tutorial. Cr. 4 (Max. 12).

Prereq: consent of instructor, department honors committee and chairman.

The following courses are open only to juniors, seniors and graduate students.

0500. The French in America During the Seventeenth and Eighteenth Centuries. Cr. 4.

Descriptive analysis of the French activity in North America; contribution to the future United States and Canada; relations with the British colonies.

0501. Colonial Heritage of the United States. Cr. 4.

Prereq: HIS 0204, 0205 or equiv. Growth of colonial American culture to a mature civilization in 1763.

0502. Founding of the United States. Cr. 4.

Prereq: HIS 0204, 0205 or equiv. Emergence of the new American nation, 1763-1789; the Revolution, War with Britain, the Confederation, and the Constitution.

0503. The Early National Period. Cr. 4.

Prereq: HIS 0204, 0205 or equiv. Political, social, intellectual and economic development in the Federalist and Jeffersonian eras, 1789-1820.

0504. The Civil War. Cr. 4.

Prereq: HIS 0204, 0205 or equiv. From the Secession crisis to Appomattox, with emphasis upon political, social and military developments.

0505. Reconstruction. Cr. 4.

Prereq: HIS 0204, 0205 or equiv. Political, social and economic events from 1865 to 1877.

0506. The Emergence of Modern America. Cr. 4.

Prereq: HIS 0204, 0205 or equiv. From Reconstruction to the twentieth century; the rise of big business, government regulations, protest movements, social and intellectual change.

0507. The New Era and the New Deal. Cr. 4.

Prereq: HIS 0204, 0205 or equiv. Social and industrial problems of the period 1920-1940; political and institutional problems associated with them.

0508. The Politics of Enterprise, 1860-1900. Cr. 4.

Prereq: HIS 0204, 0205 or equiv. Economic and political factors between 1860 and 1900.

0509. The Era of Jacksonian Democracy I: 1815-1829. Cr. 4.

Prereq: HIS 0204, 0205 or equiv.

0510. The Era of Jacksonian Democracy II: 1829-1845. Cr. 4.

Prereq: HIS 0204, 0205 or equiv.

0511. The Progressive Era. Cr. 4.

Prereq: HIS 0204, 0205 or equiv. United States in the age of T. Roosevelt, Taft and Wilson.

0512. America's Foreign Relations to 1914. Cr. 4.

Prereq: HIS 0204, 0205 or equiv. America's foreign relations from the Revolution to World War I.

0513. America's Foreign Relations since 1914. Cr. 4.

Prereq: HIS 0204, 0205 or equiv. America's foreign relations from World War I to the present.

0514. Pre-Twentieth Century American Urban History in Comparative Perspective (U P 0511). Cr. 4.

Prereq: HIS 0204, 0205 or equiv. Cities in the context of Commercialism, Industrialism, Colonialism and Nationalism, compared with other cities in the world.

0515. Twentieth Century American Cities in World Context (U P 0521). Cr. 4.

Prereq: HIS 0204, 0205 or equiv.

0516. Constitutional History of the United States to 1865. Cr. 4.

Prereq: HIS 0204, 0205 or equiv.; or pre-law standing. Development from English origins to triumph of nationalism in the Civil War and Reconstruction.

0517. Constitutional History of the United States since 1865. Cr. 4.

Prereq: HIS 0204, 0205 or equiv.; or pre-law standing. Developments from Reconstruction to the present.

0518. Intellectual History of the United States to 1865. Cr. 4.

Prereq: HIS 0204 or equiv. Influential ideas, systems of thought, national values, and individuals prominent in development of American culture from pre-Revolutionary times to mid-nineteenth century.

0519. Intellectual History of the United States since 1865. Cr. 4.

Prereq: HIS 0205 or equiv. From mid-nineteenth century to the present.

0520. Women in American Life and Thought. Cr. 4.

Rise, decline and resurgence of the status of American women.

0521. History of the Middle West, Nineteenth and Twentieth Centuries: Political and Economic Development. Cr. 4.

Prereq: HIS 0204, 0205 or equiv.

0522. History of the Middle West, Nineteenth and Twentieth Centuries: Social and Cultural Development. Cr. 4.

Prereq: HIS 0204, 0205 or equiv.

0523. The Old South. Cr. 4.

Prereq: HIS 0204, 0205 or equiv. Life and labor in the South from the eighteenth century to the Civil War.

0524. The New South. Cr. 4.

Prereq: HIS 0204, 0205 or equiv. Southern Culture from the Civil War to the present.

0525. Latin America to 1810. Cr. 4.

Geographical, ethnological, European backgrounds of Latin America.

0526. Latin America since 1810. Cr. 4.

History of the twenty Latin American Republics from the W Independence to the present.

0527. Radical Politics in American History. Cr. 4.

Prereq: two 0200 level courses in American history or equiv.; or consent of instructor. Objectives, ideology, social background and tactics of major radical movements, right and left, in American history; nineteenth and twentieth century developments.

0533. History of Greece. Cr. 4.

Ancient Greek culture, emphasizing political events, social and economic institutions, cultural achievements.

0534. History of Rome. Cr. 4.

Institutional and cultural developments.

0535. The Hellenistic Period. Cr. 4.

From Alexander the Great to Roman conquest of the eastern Mediterranean, emphasizing social and economic developments, Alexandrian science, and Hellenization of the East.

0536. Medieval Civilization I: The Early Middle Ages. Cr. 4.

European society and culture from the fourth century to the disintegration of the Carolingian Empire in the ninth century.

0537. Medieval Civilization II: The High Middle Ages. Cr. 4.

European civilization, tenth to the fifteenth century.

0538. The Renaissance. Cr. 4.

The Renaissance in society, literature, the arts.

0539. The Period of the Reformation. Cr. 4.

Protestant and Catholic reformations and adjustments to social, economic, and political conditions of the sixteenth and seventeenth centuries.

0540. History of France: 1715-1815. Cr. 4.

Prereq: HIS 0130. The Ancient Regime, the Revolution, and Napoleonic France.

0541. History of France since 1815. Cr. 4.

Prereq: HIS 0130, 0131. The Restoration monarchies, the Second Empire, the Third Republic, and contemporary France.

0542. The French Revolution. Cr. 4.

Prereq: HIS 0130. Background of the Revolution, its onset in 1789, its climax in the Legislative Assembly and Convention and the reaction under the Directory and Napoleon.

0543. (ECO 0549) American Labor History. Cr. 4.

Prereq: ECO 0101 or consent of instructor. Development of the American labor movement; its behavior in the contemporary scene. Labor's experiments with social, political, legal, economic institutions. Comparisons with foreign labor movements.

0544. History of International Relations, 1815-1914. Cr. 4.

Prereq: HIS 0130, 0131. European international relations from the fall of Napoleon and the Vienna settlement to the outbreak of World War I.

0545. European International Relations since 1914. Cr. 4.

Prereq: HIS 0130, 0131. Europe from the age of liberalism through total war and totalitarianism, culminating in the contemporary revival of Europe.

0546. Early Modern Europe I: 1555-1660. Cr. 4.

Prereq: HIS 0120, 0130; or consent of instructor. Europe in the early modern period; rise of the modern state, social and economic developments to the middle of the seventeenth century.

0547. Europe in the Age of Monarchy, 1600-1789. Cr. 4.

Prereq: HIS 0120, 0130; or consent of instructor. Maturation of European monarchy culminating in the revolutionary age of the late eighteenth century; relationship between monarchy and aristocracy; impact of economic, social and intellectual change.

0550. Comparative History: United States and Western Europe, 1890-1940. Cr. 4.

Social and intellectual currents between Europe and America.

0551. Comparative History: United States and Western Europe since 1945. Cr. 4.

Social and intellectual currents between Europe and America in the generation since World War II.

0553. Constitutional History of England to 1603. Cr. 4.

Prereq: junior standing except for sophomore pre-law students.

0554. Constitutional History of England since 1603. Cr. 4.

Prereq: junior standing except for sophomore pre-law students.

0555. Tudor and Stuart England. Cr. 4.

Social, political, economic forces apparent when England emerged as a modern nation-state.

0556. Eighteenth Century Britain. Cr. 4.

Political, social, economic developments in the Hanoverian era.

0557. Modern Britain: 1815-1900. Cr. 4.

Political, social, economic, intellectual history of Great Britain in the nineteenth century.

0558. Modern Britain since 1900. Cr. 4.

Political, social, economic, intellectual history in the twentieth century.

0559. Byzantine History I: 284-867. Cr. 4.

Prereq: HIS 0110. From Diocletian and Constantine to the Macedonian Dynasty.

0560. Byzantine History II: 867-1453. Cr. 4.

Prereq: HIS 0110 and 0120. From the Macedonian Dynasty to the fall of Constantinople.

0561. History of Russia to 1825. Cr. 4.

Prereq: HIS 0120 and 0130. Political, social, economic, intellectual history.

0562. History of Russia: 1825-1917. Cr. 4.

Prereq: HIS 0130. Political, social, economic, intellectual history.

0563. History of Italy, 1796-1945. Cr. 4.

Prereq: HIS 0130, 0131. Political and social history of Italy from Napoleon to Mussolini.

0564. German History: 1648-1871. Cr. 4.

Prereq: HIS 0131. Prussia and Austria from Peace of Westphalia (1648) to unification of Germany (1871). The Baroque age; the classical Humanist tradition; the state and culture conflict.

0565. German History since 1871. Cr. 4.

Prereq: HIS 0131. The German empire, Weimar Republic, rise and fall of Third Reich, and Post-World War II Germany.

- 0566. History of Eastern Europe to 1918. Cr. 4.**
Prereq: HIS 0130. Rise and decline of the Ottoman, Hapsburg and Polish states.
- 0567. History of Eastern Europe since 1918. Cr. 4.**
Prereq: HIS 0131. New nations of Eastern Europe and struggle of Democracy, Fascism and Communism.
- 0568. The Soviet Union: the Early Years. Cr. 4.**
Prereq: HIS 0131 or consent of instructor. Soviet Russia from the Revolution to the Stalin era.
- 0569. The Soviet Union: the Contemporary Period. Cr. 4.**
Prereq: HIS 0131 or consent of instructor. The transformation of Soviet Russia from the "Industrial Revolution" of the 1930's to the present.
- 0570. History of the Police in Europe and North America. Cr. 4.**
Comparative history of European and American police from the eighteenth century to the present.
- 0571. History of the Great Eastern Religions. Cr. 4.**
Development and basic teachings of Hinduism, Buddhism, Confucianism.
- 0572. History of the Great Western Religions. Cr. 4.**
Development and basic teachings of Judaism, Christianity, the modern secular religions.
- 0573. European Military History to 1871. Cr. 4.**
Prereq: HIS 0110, 0120, and 0130. From antiquity to the American Civil War and Franco-Prussian War.
- 0574. European Military History since 1871. Cr. 4.**
Prereq: HIS 0131. Age of Imperialism to post World War II.
- 0575. European Intellectual History: The Nineteenth Century. Cr. 4.**
Prereq: HIS 0130. Major ideas and thinkers in European society from the late eighteenth century through the nineteenth century; the Enlightenment background; Romanticism, natural science, and history as dominant modes of thought in the nineteenth century.
- 0576. European Intellectual History: The Twentieth Century. Cr. 4.**
Prereq: HIS 0130. European thought from the late nineteenth century to the present.
- 0577. The History of Science in the West: Prehistoric Man to the Sixteenth Century. Cr. 4.**
Scientific beginnings in prehistoric man; mathematics, astronomy, medicine, magic in Egypt and Mesopotamia; Hellenic and Roman science; Islamic world; transmission of Greek science and Arab mathematics, astronomy, mechanics, optics; the Latin West; science and scholasticism.
- 0578. The History of Science in the West: Sixteenth to Twentieth Century. Cr. 4.**
Science and rise of humanism; cartography and Copernican revolution; physics and mathematics; biology and medicine; seventeenth century scientific revolution; mechanics from Galileo to Newton; new chemistry and classic age of astronomical observation; popularization of science in eighteenth century and transition to contemporary science, technology in nineteenth century.
- 0579. History of Scientific Revolutions. Cr. 4.**
Cultural background, sociological setting, internal structure and historiography of scientific revolutions. Topics to be announced in *Schedule of Classes*.
- 0580. History of West Africa. Cr. 4.**
Prereq: HIS 0140 and 0141 or equiv.; or consent of instructor. Open only to juniors, seniors and graduate students. West African State formation and the trans-Saharan and Atlantic trade; Islam and socio-political change; the Atlantic slave trade; Europe and West Africa; conquest, resistance and the Colonial experience; independent West Africa. (Former HIS 0680)
- 0583. Development of East Asian Political Thought (P S 0567). Cr. 4.**
Chinese and Japanese political philosophies from Confucianism to contemporary thought.
- 0591. History of China I: Origins of the Traditional Order. Cr. 4.**
From the beginnings through the Han dynasty (to ca. A.D. 220). Prehistoric cultures, the Shang and Chou periods, political and cultural innovations in the Late Chou, the "Age of the Philosophers;" the emergence of the Ch'in unitary state; consolidation and synthesis under the Han.
- 0592. History of China II: Imperial China. Cr. 4.**
From the Han to the Ch'ing (ca. 220-1800). Buddhism and the "barbarian challenge;" the regeneration of empire (Sui-T'ang); new creativity "within the tradition" (T'ang-Sung); the renewed "barbarian challenge" (the Mongol Empire); consolidation of traditional state and society (Ming); apogee of Imperial China.
- 0593. History of China III: Modern Transformation. Cr. 4.**
Nineteenth and twentieth century developments: the Manchu state in decline; the Opium War and consequent treaty system (1842-1943); rebellions and their aftermath; limited responses to westernization; failure of both restoration and reform efforts; renewed imperialism. Manchu collapse and failure of first republic; revolution in thought and culture. The nationalist period and war with Japan. The rise of Chinese communism.
- 0595. Honors Thesis Research and Direction. Cr. 4 (Max. 12).**
Prereq: open only to history honors majors; consent of adviser, department Honors committee and chairman.
- 0596. History of the Laboring Classes in Europe: 1770-1875. Cr. 4.**
Prereq: HIS 0130. Transformation of social structure in Europe's revolutionary age.
- 0597. Social History of Europe since 1871. Cr. 4.**
Prereq: HIS 0131. The "second industrial revolution" and the emergence of mass society and the welfare state; social order in a new age of revolution.
- 0602. Studies in the Era of the American Revolution. Cr. 4.**
Prereq: HIS 0204, 0205, or equiv. Impact of the American Revolution on American life before the advent of the Constitution.
- 0609. Studies in Colonial History. Cr. 4.**
Prereq: HIS 0204, 0205, 0501; or equiv. Various phases of American life prior to the American Revolution.
- 0610. Studies in Twentieth Century American Political History. Cr. 4.**
Prereq: at least one course in twentieth century United States his-

tory or consent of instructor. Readings, discussions, and reports on various aspects of the United States in the twentieth century. Topics to be announced in *Schedule of Classes*.

0611. Studies in United States Labor History. Cr. 4.

Prereq: at least one advanced course in United States history; HIS 0543 recommended. Readings, discussion, and individual reports; examples of leading secondary literature.

0614. Cities and Empires. Cr. 4.

The history of cities and empires in Rome, China, Russia and Germany.

0615. Cities of the Advanced Industrial Countries and the Third World. Cr. 4.

The history of cities in Western Europe, North America, Japan and the Third World.

0618. Studies in Recent American Constitutional History. Cr. 4.

Prereq: HIS 0517 or consent of instructor. A variety of recent problems; e.g., desegregation, political dissidence, presidential power, the draft.

0619. Studies in Twentieth Century American Intellectual History. Cr. 4.

Prereq: HIS 0205 or 0519 or consent of instructor. Major historical trends in American intellectual and social ideas since 1900.

0620. Studies in United States Social History. Cr. 4.

Prereq: HIS 0204, 0205, or equiv. United States social problems of the early national period, such as master-slave relationships, imprisonment for debt, family structure, penal systems, women's rights. Content varies.

0623. Studies in the Civil War Era. Cr. 4 (Max. 8).

Prereq: HIS 0504 or 0523 and consent of instructor. Selected topics on the Old South, slavery, and the Civil War.

0627. Studies in Contemporary Latin America. Cr. 4.

Political, social, economic, intellectual history.

0628. (A H 0600) Art and Architecture in America From Jamestown to Civil War. Cr. 4.

0629. (A H 0601) Art and Architecture in America From Lincoln to Woodrow Wilson. Cr. 4.

0630. (A H 0602) Art and Architecture in America From Harding to the Present. Cr. 4.

0633. Aegean World to 1100 B.C. Cr. 4.

Rise and fall of Bronze Age civilization in Crete and the Greek mainland.

0634. History of Italy, 1848-1918. Cr. 4.

Prereq: HIS 0131 or consent of instructor, senior standing. The unification of Italy; united Italy; Italy and World War I.

0635. History of Italy since 1918. Cr. 4.

Prereq: HIS 0131 or consent of instructor. The rise of fascism, the fascist regime, Italy since the fall of Mussolini.

0636. Political History of the Major European States: 950-1216. Cr. 4.

Origins and development of centralized government and the mod-

ern state system in Western Europe; institutional, military and diplomatic elements in this evolution.

0637. Political History of the Major European States: 1216-1485. Cr. 4.

Continuation of History 0636.

0638. Studies in the Renaissance and Reformation. Cr. 4.

Prereq: HIS 0538 or consent of instructor. Renaissance in society, literature, the arts.

0640. Studies in the French Revolution. Cr. 4.

Prereq: consent of instructor. Detailed analysis of the social, political, and economic phenomena which constituted the upheaval of 1789-1799 in France and abroad.

0643. Studies in Spanish and Portuguese History. Cr. 4.

Prereq: at least one course in modern European history. Topics to be announced in *Schedule of Classes*.

0645. History of International Relations: 1919-1939. Cr. 4.

Prereq: HIS 0131. The Treaty of Versailles to the outbreak of World War II.

0647. Studies in Early Modern European History. Cr. 4.

Prereq. or coreq: HIS 0547 or consent of instructor. A variety of specialized topics, e.g. the politics of absolute monarchy, social and economic change, the Enlightenment.

The following courses in Near Eastern history may not be taken in fulfillment of the master's degree in history; departmental approval prior to registration required for undergraduate history major credit.

0648. (N E 0551) History of Civilization of the Ancient Near East I. Cr. 4.

Salient characteristics of Ancient Near Eastern history, law and religion based on source readings in translation from the beginnings to the Hellenistic period.

0649. (N E 0552) History of Civilization of the Ancient Near East II. Cr. 4.

Prereq: HIS 0648 or consent of instructor. Continuation of History 0648.

0650. (N E 0554) History and Civilization of Ancient Israel I. Cr. 4.

Prereq: HIS 0648 or consent of instructor. Background of biblical history and religion illustrated by modern literary and archaeological discoveries from the beginnings to the Hellenistic period.

0651. (N E 0555) History and Civilization of Ancient Israel II. Cr. 4.

Prereq: HIS 0650 or consent of instructor. Continuation of History 0650.

0652. (N E 0565) History of the Jews I. Cr. 4.

From the Hellenistic period to the seventh century.

0653. (N E 0566) History of the Jews II. Cr. 4.

Prereq: HIS 0652 or consent of instructor. The Middle Ages and modern times.

0654. (N E 0567) History of the Arabs I. Cr. 4.

Prereq: junior standing or consent of instructor. Muhammad and the rise of Islam.

0656. (N E 0568) History of the Arabs II. Cr. 4.
Prereq: HIS 0654 or consent of instructor. Origins of the Islamic state.

0657. (N E 0577) Civilization of the Medieval Near East I. Cr. 4.
Salient characteristics of Islamic historiography and scholarship. Islamic art.

0658. (N E 0578) Civilization of the Medieval Near East II. Cr. 4.
Continuation of History 0657. The Islamic city and urban institutions and the role of minorities in the social and economic life.

0659. (N E 0569) History of the Arabs III. Cr. 4.
Prereq: HIS 0656 or consent of instructor. Formation of the Islamic Empire under the Umayyads and the Abbasids.

0660. (HEB 0509) Hebrew Historical Sources. Cr. 4.
Prereq: consent of instructor. May not be taken in fulfillment of the master's degree in history. Undergraduate majors may fulfill degree requirements with this course only by consent of the department prior to registration. Introduction to early and medieval historical texts and to historiographical materials such as, Ibn Dand, Ibn Yahya and Yuhasin.

0664. History of Germany: 1918-1933. Cr. 4.
Prereq: HIS 0131. Defeat and revolution; the Weimar Republic, the Nazi movement and the advent of Hitler.

0665. Nazi Germany. Cr. 4.
Prereq: HIS 0131. The Nazi movement from inception to downfall.

0673. Topics in the History of American Foreign Relations. Cr. 4.
Prereq: HIS 0513 or consent of instructor. Particular problems and epochs. Topics to be announced in *Schedule of Classes*.

0674. Studies in the History of Military Thought. Cr. 4.
Prereq: HIS 0573 and 0574; or consent of instructor. Topics to be announced in *Schedule of Classes*.

0675. Studies in European Intellectual History. Cr. 4.
Prereq: HIS 0575 or 0576 or consent of instructor. Analysis of various intellectual problems involved in nineteenth and twentieth century politics, social and economic development, and philosophy.

0677. History of Race Ideology in the Western World, 1450 to the Present. Cr. 4.
Prereq: HIS 0131, 0204, or equiv. The rise and development of racial ideology in Europe and America since 1450. The relationship between racial thought and the historical process.

0679. Nineteenth Century East and Central African Kingdoms and European Colonialism. Cr. 4.
Prereq: HIS 0587 or 0588; or consent of instructor. Primary East and Central African kingdoms and chiefdoms in the nineteenth century and their interaction with European influences.

0688. Topics in East Asian History. Cr. 4.
Prereq: consent of instructor. Topics to be announced in *Schedule of Classes*.

0689. Studies in African History. Cr. 4.
Prereq. or coreq: HIS 0587 and 0588, or consent of instructor. Selected topics in African history in the nineteenth and twentieth centuries. Topics to be announced in *Schedule of Classes*.

0691. Japanese History I: Origins to A.D. 1185. Cr. 4.
Prereq: HIS 0110. Prehistoric foundations. The Yamato state.

Buddhism and the adoption of the Chinese pattern. Growth of a distinctive Japanese culture in the Heian period.

0692. Japanese History II: Feudal Japan, 1160-1868. Cr. 4.
The three phases of feudal Japan: the Kamakura, Ashikaga, and Takugawa regimes. Distinctive institutional and cultural changes exhibited through these successive phases.

0693. Japanese History III: Modern Japan since 1850. Cr. 4.
Japan's response to the West. Collapse of shogunal authority and the creation of a new centralized national government in and after the Meiji era. Motives, methods, and measures of modernization in the economic, military, and political realms. Japan's participation in imperial rivalries and annexation of colonial possessions. Early liberal democratic trends, submerged under nationalist militaristic reaction and war. American occupation of defeated Japan. Prosperity and change in the post-war period.

0696. Topics in European Social History. Cr. 4.
Prereq: HIS 0131. Special fields: historical demography; or special topics: the peasantry and industrial change; the crisis of Marxism, 1889-1924. Topics to be announced in *Schedule of Classes*.

0701. Studies in the Colonial Heritage of the United States. Cr. 4.
Open only to Ph.D. students. Special problems in early colonial history: social order, immigration, commerce, political problems, constitutional development.

0702. Introduction to Archival Methods (L S 7512). Cr. 4.
Prereq: consent of chairman. Basic training in archival methods.

0703. Introduction to Archival Methods (L S 7513). Cr. 4.
Prereq: consent of chairman. Continuation of History 0702.

0704. Introduction to Archival Methods (L S 7514). Cr. 4.
Prereq: consent of chairman. Continuation of History 0703.

0705. Studies in the Founding of the United States. Cr. 4.
Open only to Ph.D. students. Special problems in colonial history: population, social organization, labor, commerce, government.

0706. Studies in the Early National Period. Cr. 4.
Open only to Ph.D. students. Political, social, economic and intellectual currents of the period between 1783 and 1815 analyzed in terms of the principal ideas, currents and historiographical problems of early American history.

0707. Studies in the New Era and the New Deal. Cr. 4.
Open only to Ph.D. students. Political problems from Wilson through F. D. Roosevelt.

0710. Studies in the Era of Jacksonian Democracy II: 1829-1845. Cr. 4.
Open only to Ph.D. students. Political, social, and economic problems of the Jacksonian era.

0733. Studies in the History of Greece. Cr. 4.
Open only to Ph.D. students. Ancient Greek culture from the Archaic Age to the Hellenistic era; political, cultural, economic and social developments.

0734. Studies in the History of Rome. Cr. 4.
Open only to Ph.D. students. Institutional and cultural developments.

0735. Studies in the Hellenistic Period. Cr. 4.
Open only to Ph.D. students. Special historical problems.

- 0736. Studies in Medieval Civilization: Early Middle Ages. Cr. 4.**
Open only to Ph.D. students. Political and social problems in western Europe between 400 and 1000 A.D.
- 0737. Studies in Medieval Civilization II: The High Middle Ages. Cr. 4.**
Open only to Ph.D. students. Society and culture in Western Europe from the tenth to the fifteenth century.
- 0747. Studies in Early Modern Europe II: 1660-1789. Cr. 4.**
Open only to Ph.D. students. State structure, social order, and political problems in the age of absolutism.
- 0757. Studies in Modern Britain: 1815-1900. Cr. 4.**
Open only to Ph.D. students. State and society in the era of nineteenth century liberalism, industrialism, and imperialism.
- 0758. Studies in Modern Britain since 1900. Cr. 4.**
Open only to Ph.D. students. Various economic, political and social problems of Great Britain in the twentieth century.
- 0767. Studies in the History of Eastern Europe since 1918. Cr. 4.**
Open only to Ph.D. students. The Versailles settlement; failure of the national state; World War II and the Nazi empire; the Socialist Commonwealth.
- 0787. Methods and Research in History. Cr. 4.**
Required as first course for all M.A. candidates. Methods and tools of research and documentation. Use of aids and guides.
- 0788. Studies in American Historiography. Cr. 4.**
- 0789. The Writing of History. Cr. 4.**
Prereq: HIS 0787. Techniques and practice.
- 0799. Master's Essay Direction. Cr. 4.**
Prereq: consent of adviser.
- 0801. Introductory Doctoral Seminar I. Cr. 8.**
Credit only by written examination after completion of sequence History 0801, 0802, and 0803. Prereq: consent of chairman. Open only to beginning Ph.D. students. Major historiographical problems in Western civilization.
- 0802. Introductory Doctoral Seminar II. Cr. 8.**
Credit only by written examination after completion of sequence History 0801, 0802, and 0803. Prereq: consent of chairman. Open only to beginning Ph.D. students. Major historiographical problems in Western civilization.
- 0803. Introductory Doctoral Seminar III. Cr. 8.**
Credit only by written examination after completion of sequence History 0801, 0802, and 0803. Prereq: consent of chairman. Open only to beginning Ph.D. students. Major historiographical problems in Western civilization.
- 0804. American Contributions to Modern European Historiography. Cr. 4.**
Prereq: consent of instructor. The writings of a number of distinguished American modernists.
- 0805. The Jeffersonian Era I. Cr. 4.**
Prereq: consent of chairman.
- 0806. The Jeffersonian Era II. Cr. 4.**
Prereq: consent of chairman.
- 0807. Seminar in the Taft Years: 1907-1914. Cr. 4.**
Prereq: consent of instructor. Conservative trends in the Progressive Era.
- 0810. Seminar in Twentieth Century American Social History. Cr. 4.**
Main social trends in America in the twentieth century.
- 0813. Seminar in the Historical Context of the Law. Cr. 4.**
Case studies from different historical periods, including the present, of how law emerges from and influences socio-economic cultural context.
- 0814. History of Urban Culture in America, 1750 to the Present. Cr. 4.**
Structure and culture of American cities, such as New York, Chicago, Philadelphia, San Francisco, Los Angeles, from the eighteenth century to the present emphasizing city forms, government and social and cultural life.
- 0815. Seminar in Urban History. Cr. 4.**
Prereq: HIS 0514 or 0515 or 0614 or 0615 or consent of instructor. Comparison of urban patterns in two or more parts of the world and eras, as selected by students in consultation with the professor.
- 0860. Seminar in Byzantine History. Cr. 4.**
Prereq: HIS 0559 or 0560. Social, economic, political and religious problems related to Byzantine history from the fourth to the fifteenth centuries A.D.
- 0868. Seminar in African History. Cr. 4.**
Prereq: HIS 0587 or 0588 or consent of chairman. Selected topics.
- 0870. Seminar in Early America. Cr. 4.**
Prereq: HIS 0501 or 0502.
- 0871. Seminar in Middle America. Cr. 4 (Max. 8).**
Prereq. or coreq: HIS 0504 or 0523.
- 0872. Seminar in Modern America. Cr. 4.**
Prereq. or coreq: HIS 0506 or 0507, or one other advanced course in twentieth century United States history; or consent of chairman. Topics to be announced in *Schedule of Classes*.
- 0873. Seminar in American Diplomatic History. Cr. 4.**
Prereq. or coreq: HIS 0512 or 0513.
- 0874. Seminar in the History of the Middle West. Cr. 4.**
Prereq: HIS 0521 or 0522, or consent of chairman.
- 0876. Seminar in Ancient History. Cr. 4.**
Prereq. or coreq: HIS 0533 or 0534.
- 0877. Seminar in Medieval History. Cr. 4.**
Prereq. or coreq: HIS 0536 or 0537.
- 0878. Seminar in Renaissance and Reformation History. Cr. 4.**
Prereq. or coreq: HIS 0538 or 0539.
- 0879. Seminar in Modern European History. Cr. 4.**
Prereq. or coreq: HIS 0544 or 0545; or 0546 or 0547, as required.
- 0880. Seminar in Far Eastern History. Cr. 4.**
Prereq. or coreq: HIS 0591, 0592 or 0593; or HIS 0691, 0692 or 0693.
- 0881. Seminar in Latin American History. Cr. 4.**
Prereq. or coreq: HIS 0525 or 0526.

0882. Seminar in British History. Cr. 4.

Prereq. or coreq: HIS 0555, 0556, 0557 or 0558.

0883. Seminar in American Intellectual History. Cr. 4.

Prereq. or coreq: HIS 0518 or 0519 or consent of chairman. Significant aspects of intellectual and cultural history from late eighteenth century to the modern era.

0884. Seminar in the History of the American South. Cr. 4 (Max. 8).

Prereq: HIS 0504 or 0523. Open only to graduate history majors; others by consent of chairman. Successive selective problems before 1865.

0885. Seminar in Modern European Intellectual History. Cr. 4.

Prereq: HIS 0575 or 0576. Open only to graduate history majors; others by consent of chairman. Highly specialized problems.

0886. Seminar in European Diplomatic History since 1848. Cr. 4.

Prereq: graduate standing in history or consent of instructor or chairman. Problems in European diplomacy and international relations in the late nineteenth century. Topics vary.

0887. Seminar in Modern Germany. Cr. 4.

Prereq: HIS 0564 or 0565, or consent of chairman. Successive specialized problems in German history since 1648.

0888. Seminar in Russian and Soviet History. Cr. 4.

Prereq: HIS 0561, 0562, 0568, 0569; or consent of chairman. Specialized problems dealing with the background and the development of the Revolution of 1917, and Russian and Soviet political, economic, and diplomatic history since then.

0889. Seminar in United States Constitutional History. Cr. 4.

Prereq: HIS 0516 and 0517 or consent of chairman. Selected problems.

0890. Directed Study. Cr. 4 (Max. 8).

Prereq: consent of instructor, adviser, and graduate officer.

0891. Seminar in East European History. Cr. 4.

Prereq: HIS 0566 or 0567 or consent of chairman. Problems in the history of Poland, Czechoslovakia, Hungary, Romania, Yugoslavia, Bulgaria, Albania, and Greece since 1918.

0899. Master's Thesis Research and Direction. Cr. 4-12 (12 required).

Prereq: consent of adviser. (Register in multiples of four credits.)

0901. Seminar on American Civilization to 1876. Cr. 4.

Prereq: consent of chairman. Open only to Ph.D. candidates.

0902. Seminar on American Civilization since 1876. Cr. 4.

Prereq: consent of chairman. Open only to Ph.D. candidates.

0910. Seminar on Western Civilization: Early Period. Cr. 4.

Prereq: consent of chairman. Open only to Ph.D. candidates.

0920. Seminar on Western Civilization: Modern Period. Cr. 4.

Prereq: consent of chairman. Open only to Ph.D. candidates.

0999. Doctoral Dissertation Research and Direction. Credits to be arranged.

Prereq: consent of doctoral adviser. Open only to Ph.D. candidates. (Register in multiples of four credits, or as approved by graduate adviser and graduate dean.)

HONORS PROGRAM

Office: 16.1 Library Court

Director: Marilyn L. Williamson

Assistant Director: Brad Iverson

Adviser: Norman J. Kopmeyer

See page 229 for a general description of the program.

HONORS COURSES

American Studies 0220. Colloquium in the Recent Past. Cr. 4.

English 0197. Freshman Honors: English I. Cr. 4.

English 0297. Freshman Honors: English II. Cr. 4.

English 0299. Sophomore Honors Colloquium. Cr. 4.

Philosophy 0102. Honors Introduction to Philosophy. Cr. 5.

Political Science 0103. Introduction to American Politics.

Cr. 5.

COURSES WITH HONORS SECTIONS

Art History 0100. Introduction to the Elements of Art. Cr. 4.

Biology 0103. Introductory Biology. Cr. 5.

Biology 0140. Plant Biology. Cr. 5.

Biology 0160. Animal Biology. Cr. 5.

Biology 0220. Introductory Microbiology. Cr. 4.

Chemistry 0107. Principles of Chemistry I. Cr. 4.

Chemistry 0108. Principles of Chemistry II. Cr. 5.

Chemistry 0110. General Analytical Chemistry. Cr. 4.

Chemistry 0224. Organic Chemistry I. Cr. 4.

Chemistry 0226. Organic Chemistry II. Cr. 4.

Chemistry 0227. Organic Chemistry Laboratory. Cr. 3.

Classics 0100. Introduction to Greek Tragedy. Cr. 4.

Classics 0101. Introduction to the Epics of Homer and Vergil.

Cr. 4.

Classics 0200. Greek Mythology. Cr. 4.

Economics 0101. Survey of Economics I. Cr. 4.

Economics 0102. Survey of Economics II. Cr. 4.

Geology 0101. Principles of Geology I. Cr. 5.

History 0204. American Foundations. Cr. 4.

History 0205. Modern America. Cr. 4.

History 0397. Pro-Seminar in European History. Cr. 4

(Max. 8).

Humanities 0220. Sophomore Honors Colloquium. Cr. 4.

(Max. 12).

Mathematics 0212. Calculus Functions of Several Variables I. Cr. 4.

Mathematics 0213. Elementary Linear Algebra. Cr. 4.

Political Science 0208. Contemporary Political Ideologies.

Cr. 4.

Psychology 0198. Introductory Psychology. Cr. 4.

Psychology 0360. The Psychology of Social Behavior. Cr. 4.

Psychology 0430. Abnormal Psychology. Cr. 4.

Complete information regarding the honors sections and courses may be found under the appropriate departmental heading in this bulletin.

COURSES OF INSTRUCTION' (HON)

Seminars and Directed Study

0201. Contemporary Issues. Cr. 1 (Max. 6).

Open only to students in Liberal Arts Honors Program. Interdisciplinary seminar for honors students at all levels. Topics chosen by students and coordinated by faculty leader.

0220. Sophomore Honors Colloquium. Cr. 4 (Max. 12).

Prereq: written consent of director. Topics to be announced in *Schedule of Classes*.

0420. Senior Honors Seminar. Cr. 4 (Max. 12).

Prereq: senior standing. Open only to students in Liberal Arts Honors Program or with consent of director. Topics to be announced in *Schedule of Classes*.

0481. Perspectives on Science. Cr. 2-4 (Max. 6).

Prereq: senior standing. Open only to students in Liberal Arts Honors Program; others by consent of director. Interdisciplinary seminar focusing on nature of twentieth century scientific activity and its human concomitants. Modern historical source materials as case studies of such developments as quantum mechanics, the airplane, cybernetics.

0483. Economic Issues. Cr. 4.

Prereq: ECO 0101 and 0102; senior standing. Open only to students in Liberal Arts Honors Program, or others with consent of director. Current interest and controversy. Interdisciplinary approaches involving sociology, psychology and history.

0486. Contemporary Issues of the Middle East. Cr. 4.

Prereq: senior standing. Open only to students in Liberal Arts Honors Program; others by consent of director. Five important issues in the Middle East. Speakers from such areas as economics, political science and anthropology will serve as guest lecturers.

0487. (GER 0663) Problems in German Literary and Aesthetic Theory. Cr. 4.

Prereq: senior standing. Open only to students in Liberal Arts Honors Program; others by consent of director. Major critics or criticism of a period, analyses of texts, ideas, and important aesthetic questions.

0490. Directed Study. Cr. 2-4 (Max. 16).

Prereq: written consent of director.

0492. Religious Ideas and Issues. Cr. 4 (Max. 12).

Prereq: senior standing. Open only to students in Liberal Arts Honors Program; others by consent of director. Religion and revolution; the problem of God and the new quest for transcendence; theories of religion. Topics to be announced in *Schedule of Classes*.

0493. Intellectual Odysseys. Cr. 4-6 (Max. 12).

Prereq: senior standing. Open only to students in Liberal Arts Honors Program; others by consent of director. Consideration of ideas of major figures in intellectual history through analysis of their works. Topics to be announced in *Schedule of Classes*.

See page 661 for interpretation of numbering system, signs and abbreviations.

HUMANITIES

Office: 403 Library Court

Chairman: Martin M. Herman

PROFESSORS

Bernard M. Goldman, Martin M. Herman, Chester F. Kuhn (Emeritus), Sara Leopold, Alexandra McCoy

ASSOCIATE PROFESSOR

Homer F. Edwards, Jr.

ASSISTANT PROFESSORS

Ramon J. Betanzos, Marc Cogan, Richard P. Studing

INSTRUCTOR

Dale J. Bonge

DEGREE PROGRAMS

Bachelor of Arts — with a major in Humanities and a major or special concentration in another department

Master of Arts — information about the Comparative Arts program can be obtained in the department office

The Humanities curriculum focuses on the symbolic ways in which human beings represent their experience. By means of a multidisciplinary approach, the various courses examine relationships among constructs such as art, music, literature, history, language, and philosophy from both a theoretical and an historical perspective.

These courses are designed to serve four curricular needs:

(1) Some may be taken by any undergraduate to fulfill Humanities Group Requirements in the College of Liberal Arts.

(2) Some may be taken as electives or cognates by students majoring in other departments.

(3) Combinations of these courses provide a major in Humanities.

(4) Combinations also may be approved for students taking the master's degree in Comparative Arts.

BACHELOR OF ARTS

General Requirements for Majors — All majors must fulfill the College Group Requirements and other graduation requirements. In addition to taking thirty-six hours of course work in humanities, they must also meet the major requirements of a specific department other than humanities or else take thirty-six hours in a special concentration. Students who plan to take this major should consult a departmental adviser for further information.

Curriculum Requirements within the Department — All majors are required to take the following courses:

Humanities 0210, 0211, and 0212

Humanities 0221 and 0222

Two humanities courses at the 0300 level

Two humanities courses at the 0500 level

To insure adequate breadth and depth, each major student must decide, in consultation with a departmental adviser, on an appropriate *Plan of Work* and file a copy of the plan with the department chairman.

COURSES OF INSTRUCTION (HUM)¹

0101. Art and Music in Western Civilization. Cr. 4.

No credit for humanities majors. Historical survey of the visual arts and music from the Classical period to the present.

0102. Looking at Art and Listening to Music. Cr. 4.

No credit for humanities majors. Identifying, clearly and precisely, what is seen and heard in selected works of art. Serious consideration given to the manner and context of artistic communication.

0210. Humanities and the Western Tradition I: The Classical World. Cr. 4.

Examination of arts and ideas in the Greco-Roman world, from the fifth century B.C. to the fifth century A.D. (Former HUM 0110)

0211. Humanities and the Western Tradition II: The Middle Ages, Renaissance, and Enlightenment. Cr. 4.

Examination of arts and ideas from the fifth century to 1750. (Former HUM 0111)

0212. Humanities and the Western Tradition III: The Modern World. Cr. 4.

Examination of arts and ideas from 1750 to the present. (Former HUM 0112)

0220. Sophomore Honors Colloquium. Cr. 4 (Max. 12).

Prereq: sophomore standing; open only to students in Liberal Arts Honors Program. Topics to be announced in *Schedule of Classes*.

0221. Medium, Form, and Meaning in the Arts. Cr. 4.

Consideration of the relative strength and range of artistic media. Major works of poetry, drama, art, and music will serve to demonstrate how medium, form, meaning, and message act in concert.

0222. Constructs of Human Experience: Histories, Novels, Philosophies. Cr. 4.

Examination of texts selected from the major categories of prose writing — history, narrative fiction, and philosophy. Exploration of various critical approaches as a means to fuller understanding.

0301. The Persistence of Tradition. Cr. 4.

Selected studies dealing with the recurrence and transformation of theme, symbol, and genre.

0302. Continuity and Change. Cr. 4.

Ways in which past and present intersect in arts and ideas; the dynamics of historical change and the extent to which traditional problems determine subsequent responses.

0303. Music — Theatre — Cinema: Imitation, Adaptation, Transformation. Cr. 4.

Prereq: HUM 0102 or 0221 or equiv. Manner in which related themes and ideas are imitated and adapted through time and across media.

0304. Language, Logic, and Thought. Cr. 4.

Prereq: HUM 0222 or equiv. Rhetorical strategies used in literature, history, and philosophy. Influential texts, ancient and modern, studied intensively; historical contexts and philosophical foundations considered.

0390. Directed Study. Cr. 1-4 (Max. 4).

Prereq: written consent of chairman. Open primarily to junior and senior humanities majors. Advanced study in a particular area of the humanities.

0397. Seminar for Juniors. Cr. 4 (Max. 8).

Prereq: written consent of instructor. May be repeated with consent of chairman. Topics to be announced in *Schedule of Classes*.

0485. Humanities and Education. Cr. 4.

Major traditions in Western art, literature, and philosophy as they relate to education and the humanities.

0497. Seminar for Seniors. Cr. 4.

Prereq: written consent of instructor. Topics to be announced in *Schedule of Classes*.

0510. Philosophical Bases of Critical Theory. Cr. 4.

No graduate credit. Prereq: HUM 0221 and 0222 or equiv. Ancient and modern philosophical and critical texts; origin of differing critical methods in differing philosophical questions and premises; utility of a pluralistic approach to preserve the integrity of independent critical theories as tools for illuminating distinct aspects of humanistic experience.

0533. Western Culture in the Classical Period. Cr. 4.

Prereq: HUM 0210, 0211, and 0212 or equiv. Stylistic relationships among the arts; consideration of connections between the arts and other forms of knowledge or experience — history, philosophy, religion, the sciences.

0535. Western Culture in the Middle Ages. Cr. 4.

Prereq: HUM 0210, 0211, and 0212 or equiv. Stylistic relationships among the arts; connections between the arts and other forms of knowledge or experience — history, philosophy, religion, the sciences.

0536. Western Culture in the Renaissance. Cr. 4.

Prereq: HUM 0210, 0211, and 0212 or equiv. Approach similar to that of HUM 0535.

0537. Western Culture in the Baroque Period. Cr. 4.

Prereq: HUM 0210, 0211, and 0212 or equiv. Approach similar to that of HUM 0535.

0538. Western Culture in the Romantic Period. Cr. 4.

Prereq: HUM 0210, 0211, and 0212 or equiv. Approach similar to that of HUM 0535.

0539. Western Culture from 1870 to the Present. Cr. 4.

Prereq: HUM 0210, 0211, and 0212 or equiv. Approach similar to that of HUM 0535.

0575. Studies in the Arts and Ideas of American Culture I: 1770-1870. Cr. 4.

Prereq: HUM 0212 and one course in American literature or

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

American history or AS 0501 or equiv. Major individuals, schools, and movements in American literature, philosophy, music and the visual arts investigated in terms of their relationships to one another and to American history.

0576. Studies in the Arts and Ideas of American Culture II: The Gilded Age to the Present. Cr. 4.

Prereq: HUM 0212 and one course in American literature or American history or AS 0501 or equiv. Approach similar to that of HUM 0575.

0585. Introductory Studies: Arts and Ideas of India. Cr. 4.

Major artistic achievements and philosophical concepts as expressed in selected examples from the visual arts, literature, music, and drama of India.

0586. Introductory Studies: Arts and Ideas of China. Cr. 4.

Approach similar to that of HUM 0585.

0587. Introductory Studies: Arts and Ideas of Japan. Cr. 4.

Approach similar to that of HUM 0585.

0652. Interrelation of the Arts in Critical Theory. Cr. 4.

Sources and content of contemporary theories of criticism; their adequacy when applied to various arts. (Former HUM 0552)

0665. Studies in Humanities. Cr. 4.

Intensive study of a specific aspect of a period, genre, or theme. Topics to be announced in *Schedule of Classes*.

0701. Bibliography and Methods for Humanities Majors. Cr. 4.

Advanced comparative bibliographic techniques and methods in the arts; examination of methodologies of interdisciplinary studies.

0791. Problems and Methods of Teaching Humanities in the Community College I. Cr. 3-4.

Prereq: written consent of chairman, instructor and adviser.

0792. Student Teaching of the Humanities on the Community College Level. Cr. 3-4.

Prereq. or coreq: HUM 0791 and consent of adviser. Offered for S and U grades only.

0794. Problems and Methods of Teaching Humanities in the Community College II. Cr. 3-4.

Prereq: HUM 0791. Continuation of Humanities 0791.

0796. Research Problems. Cr. 1-4 (Max. 4).

Prereq: written consent of chairman, instructor, and adviser.

0797. Seminar for Graduate Majors. Cr. 4.

Required of humanities majors.

0799. Master's Essay Direction. Cr. 3-4.

Prereq: consent of chairman.

0899. Master's Thesis Research and Direction.

Cr. 2-12 (12 dequred).

Prereq: consent of chairman.

INTERNATIONAL STUDIES

Office: 545 Mackenzie Hall

Acting Director: C. Norman Guice

CURRICULUM AND CO-MAJOR

Programs

Transcript Notation — In this program, the student needs to fulfill only the core requirements, although he may elect more courses.

Co-Major — The student must fulfill the core requirements and elect a maximum of twenty-four credits in elective courses for a total of forty-four credits. These courses may be selected from the booklet *Studies in International Affairs*.

Core Requirements

	<i>credits</i>
ANT 0210 — Introduction to Anthropology	4
ECO 0530 — International Economic Relations, Prereq: ECO 0102 ..	4
GEG 0200 — The World Today	4
HIS 0513 — America's Foreign Relations since 1914. Prereq: HIS 0204, 0205, or equiv.	4
PS 0281 — World Politics. Prereq: PS 0101 or cons. instr.	4

Courses included in the program in international studies may count toward satisfying the departmental major as well as the core requirements or the electives of the co-major program.

An honors co-major is possible with twenty-four credits in independent reading including a senior essay.

Students who wish more information about the program should consult the Adviser for International Studies, Mr. Edward Jabbour, second floor, Mackenzie Hall.

COURSES OF INSTRUCTION¹ (I S)

0100. China: Past and Present (ASN 0100). Cr. 4.

General survey of Chinese civilization, culture and society, from early times to the present.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

LABOR STUDIES

Office: 718 Mackenzie

Administrative Committee: Mark L. Kahn, Economics; Philip P. Mason, History; Ruth A. Rosen, Sociology; Ross Stagner, Psychology (Chairman)

The Labor Studies Program is an integrated, interdepartmental program offering an opportunity to study intensively the organized labor movement, using the concepts and approaches of various academic disciplines. Students completing the program will receive a B.A. degree in Liberal Arts with a major in Labor Studies.

BACHELOR OF ARTS Special Curriculum

The Labor Studies Program is administered by an interdepartmental committee. The prospective student should consult one of the members of this committee with regard to goals and requirements of the program before enrolling. Normally this election of major should occur at the end of the sophomore year, but interested students are urged to obtain advice with respect to required courses and breadth of experience as early as possible. The curriculum may be considered as preparatory to a career in the labor movement or as training for those already active in a union; however, it will also provide a suitable background for graduate study in this area. Note that the specific courses to be chosen will differ somewhat according to the student's choice of goals.

Curriculum and Major Requirements

Each Labor Studies major must meet the general requirements of the College of Liberal Arts for the B.A. degree. In addition, the following course requirements have been established:

A. Core Curriculum. The following courses (thirty-two credits) are required of all majors in this program:

Economics 0541, 0641
History 0543
Psychology 0566
Union Organization and Administration (to be established)
Senior Seminar I, II, III (to be established)

B. Four courses (sixteen credits) must be chosen from the following list:

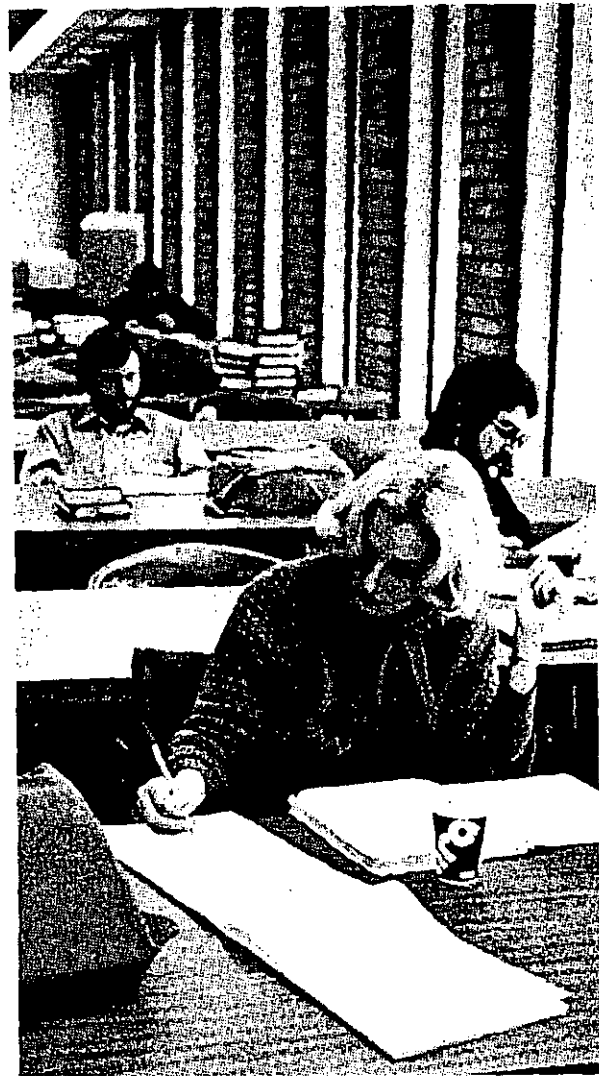
Business Administration 0574
Political Science 0629
Seminar Law 0641
Sociology 0613
History 0596
Industrial Health and Safety (to be established)

To the extent that one or more of the listed courses may be unavailable, equivalent courses may be approved by the Administrative Committee.

Suggested Electives

While the following list indicates some of the existing courses which are considered appropriate as electives in the Labor Studies program, this list is not restrictive. In consultation with the adviser, a student may exclude some of these and include others which fit into an acceptable pattern for broadening the student's skills and understanding of the labor movement. The following courses are some obvious possibilities:

Biology 0100
English 0209, 0309, 0515
History 0350, 0596
Psychology 0350, 0360, 0553, 0554
Political Science 0625
Sociology 0515, 0519
Speech 0316
Business Administration 0674
Seminar Law 0612



LINGUISTICS

Office: 375 Manoogian Hall

Director: Sol Rossman

Staff: selected from the Departments of Anthropology, English, Mathematics, Near Eastern Languages, Philosophy, Psychology, Romance and Germanic Languages, Slavic Languages, and Speech.

MASTER OF ARTS IN LINGUISTICS

Plan B — Forty-four credits in course work plus an essay.

Admission — All applicants must meet the general standards for admission to graduate study as determined by the University and stated elsewhere in this bulletin. In addition, the student must have taken an introductory course in linguistics and show proficiency in at least one foreign language.

Candidacy — must be established by the time sixteen credits have been earned.

Degree Requirements — The student is required to complete a basic core of general linguistics courses and then to concentrate on a particular area of linguistics: for example, ethnolinguistics, psycholinguistics, or a study of a particular language. Programs are to be planned in consultation with the Director of Linguistics and are to be approved by the Linguistics Committee. An essay and final written and oral examination is required.

Courses of Instruction — In addition to the following courses, consult the course offerings of the above named departments.

COURSES OF INSTRUCTION' (LIN)

0510. (ANT 0510) The World of Language. Cr. 4.
Introduction to the field of linguistics with concentration on the scope, basic concepts, and methodologies of the field.

0529. (ANT 0529) Introduction to Phonology. Cr. 4.
Prereq: LIN 0510 or consent of instructor. Scientific study of languages through an examination of linguistic structures; sound systems.

0530. (ANT 0530) Introduction to Morphology. Cr. 4.
Prereq: LIN 0529 or consent of instructor. Representation of meaning in the forms of languages.

0531. (ANT 0531) Language and Culture. Cr. 4.
Prereq: ANT 0210 or consent of instructor. Relationship between linguistic categories and patterns of culture. Knowledge of linguistics not required.

0550. (ANT 0550) Syntax. Cr. 4.
Prereq: LIN 0529 and 0530 or consent of instructor. Introduction to syntactic analysis utilizing different theoretical approaches.

See page 661 for interpretation of numbering system, signs and abbreviations.

0635. (ANT 0635) Sociolinguistics. Cr. 4.
Prereq: ANT 0210 or SOC 0201 or SS 0191. Method and theory in the study of language and society; ethnography of communication; repertoires, codes and dialects; street language and literature; language planning and problems; bilingualism and language loyalty; language in education.

0710. (ANT 0710) Studies in Linguistics. Cr. 4-16.
Prereq: LIN 0529, 0530 and 0550. Topics to be announced in *Schedule of Classes*.

0761. (ANT 0761) Seminar in Problems and Concepts in Linguistics. Cr. 4 (Max. 12).
Prereq: consent of instructor. Central concepts and theories in linguistics. Current developments, problems, and contemporary research orientations in the field. Topics to be announced in *Schedule of Classes*.

0764. (ANT 0764) Seminar in Problems and Concepts in Linguistic Anthropology. Cr. 4 (Max. 12).
Prereq: LIN 0531 or consent of instructor. Central concepts and theories. Current developments, problems and contemporary research orientation. Topics to be announced in *Schedule of Classes*.

0791. (ANT 0791) Directed Study in Linguistics. Cr. 2-12 (Max. 12).
Prereq: consent of adviser and written consent of graduate officer. Open only to M.A. candidates. A research problem which requires field work or intensive and systematic reading of original technical literature.

0799. Master's Essay Direction. Cr. 4.
Prereq: consent of adviser.

MATHEMATICS

Office: 646 Mackenzie Hall

Chairman: Bertram J. Eisenstadt

Academic Services Officer: Katherine McDonald

PROFESSORS

Albert T. Bharucha-Reid, Leon Brown, Bertram J. Eisenstadt, Karl W. Folley (Emeritus), Chong-Shi Houg (Emeritus), John M. Irwin, Takashi Ito, Andre G. Laurent, Andrew S. Lelek, D. Clarence Morrow (Emeritus), Togo Nishiura, Owen G. Owens, Wladimir Seidel, Chia Kuei Tsao, Martin T. Wechsler

ASSOCIATE PROFESSORS

Bess E. Allen (Emeritus), Gregory F. Bachelis, William M. Borgman, Jr. (Emeritus), John C. Breckenridge, Pao-Liu Chow, Henryk Fast, Larry A. Finkelstein, David Handel, Lowell J. Hansen, David W. Jonah, Morris W. Katz, James J. Kelleher, Marc Konvisser, Hui-Hsiung Kuo, Judith Q. Longyear, Jingyal Pak, Henry H. Pixley (Emeritus), Geert C. E. Prins, Choon-Jai Rhee, Claude L. Schochet, Bertram M. Schreiber, Harold T. Slaby, Tze-Chien Sun, Paul Weiss, Stephen A. Williams

ASSISTANT PROFESSORS

David E. Bindschadler, Lawrence J. Brenton, Paul A. Catlin, Kuo-Liang Chiou, Daniel S. Drucker, Joseph Fleischman, Daniel E. Frohardt, Gary R. Greenfield, Karl J. Lindberg, Richard I. Loebel, Kim E. Michener, David J. Nordstrom, N. D. Prabhakar, Jay A. Shapiro, Steven Ziskind

ADJUNCT ASSISTANT PROFESSOR

Richard L. Fremon

The Mathematics Department's Computer Science Section is listed beginning on page 281.

DEGREE PROGRAMS

- Bachelor of Arts — with a major in mathematics*
- Bachelor of Arts — with a major in computer science (as a second major only)**
- Bachelor of Science — with a major in mathematics*
- Bachelor of Science — with a major in computer science (as a second major only)**
- Bachelor of Science in Computer Science**
- Master of Arts — with a major in mathematics*
- Master of Arts — with a major in mathematical statistics*
- Master of Arts in Applied Mathematics*
- Master of Arts — with a major in computer science*

* See Computer Science Section, page 281.

Master of Science — with a major in computer science

Master of Arts in Teaching College Mathematics

Doctor of Philosophy — with a major in mathematics and specializations in pure mathematics, applied mathematics, and mathematical statistics

The courses offered by the Department of Mathematics serve several purposes: they supply the mathematical preparation necessary for students specializing in the physical, life, or social sciences; in business administration, in engineering, and in education; they provide a route by which students may arrive at the research level in any of several special mathematical areas and in computer science; they allow students to prepare themselves for work as mathematicians, statisticians, and computer specialists in industry and government; and they give an opportunity to all inquisitive students to learn something about modern mathematical ideas.

The departmental programs in computer science have been organized in a separate Computer Science Section. For its programs and course offerings, see page 281.

Certain members of the mathematics faculty have been designated as departmental advisers. Questions concerning any phase of the mathematics program may be directed to them through the department office. Undergraduates will be accepted as mathematics majors only after an interview with a departmental adviser. After a student's acceptance as a major, all his or her course elections must be signed by a department adviser. The same holds true for graduate students in mathematics except that once a faculty member agrees to direct a graduate student's essay or thesis the faculty member becomes the student's academic adviser.

BASIC SEQUENCE

The sequence consists of mathematics courses 0211, 0212, 0213, 0214, 0215, and 0519. While it is designed to meet the needs of students majoring in mathematics, engineering, or the exact sciences, it is often the best set of courses in mathematics for students with other objectives.

It is important to note that it is not necessary to take the courses of this sequence in numerical order. To meet the needs of a wide variety of students, the sequence provides many options as to order of election. The prerequisites require only that course 0211 be taken first, and that 0212 and 0215 precede 0214. Thus, after completing 0211 the student may elect any of 0212, 0213, or 0215. The order for a given student depends upon the demands of his or her total program. For example, physics majors are advised to take 0212 as soon as possible, preferably immediately after 0211. Most students will prefer to arrange their elections in the order 0211, 0215, 0212, 0214 which agrees with the order in which the material occurs in the text. It is easier to take 0213 after 0212, and this should be done unless the student needs an earlier introduction to linear algebra.

A student wishing to move more rapidly through this sequence may take more than one course per quarter. For example, he or she might take 0211 the first quarter, 0212 and 0215 the second quarter, and 0213 and 0214 the third.

Students who do not wish to go on to more advanced mathematical work may elect varying parts of this basic sequence.

To enter the Basic Sequence a student must pass Mathematics 0179 or 0180 or obtain a satisfactory score on the Mathematics Qualifying Examination (see below) which is based on three and one-half to four years of college preparatory mathematics including topics from algebra, plane and solid geometry, and trigonometry. Students are not allowed to enroll in Mathematics 0211 without this educational background or its equivalent. Courses designed for other purposes (e.g., general mathematics, consumer mathematics, business mathematics, shop mathematics) do not constitute adequate preparation for this sequence.

MATHEMATICS QUALIFYING EXAMINATION

Designated minimum scores on the Mathematics Qualifying Examination must be achieved within the previous three quarters in order to (a) enroll in Mathematics 0178 (except for certain students from Mathematics 0095 who are recommended by their instructors), (b) enroll in Mathematics 0180, or (c) enroll directly in Mathematics 0211 without first passing Mathematics 0179 or 0180. All transfer students, including those who have had the equivalent of Mathematics 0179 or 0180 at another institution, are required to take the qualifying examination before enrolling in Mathematics 0211.

This examination is administered each quarter. The schedule of examinations appears in the *Schedule of Classes* preceding the list of offerings in mathematics. If possible, a student should take the qualifying examination two quarters before electing a mathematics course. This will permit the student with a deficiency in preparation to remedy it before scheduling to elect the required course. It is important for the student to review thoroughly the basic notions and operations of elementary mathematics before taking the examination. A student may take the examination only once during one testing period.

The Mathematics Qualifying Examination tests proficiency. Parts A and B of the examination are used to determine eligibility for Mathematics 0178 or 0180. The level of this part corresponds to the competence gained in two and a half years of college preparatory mathematics including topics from elementary algebra and geometry. Candidates for Mathematics 0211 must take the full examination of about two hours duration. The second part of the examination is on a level indicated in the discussion of the Basic Sequence above.

INTRODUCTORY COURSES FOR NON-MAJORS

It must be emphasized that students who, for any purpose, desire a foundation in elementary college level mathematics adequate for continuing with more advanced mathematics should elect the Basic Sequence. On the other hand, for students, undergraduate or graduate, who need an introduction to college level mathematics but do not expect to take advanced courses, the Mathematics Department has designed a variety of service courses. These courses are collected in a separate list entitled "Service Courses" which appears at the end of the general list. Ordinarily, the courses in this list are not suitable for degree work in mathematics. Courses in the

Service Course list are not intended as preparation for more advanced mathematical study. Therefore, they should not be elected by students in any area who plan a continuing education in mathematics.

The General Sequence — Mathematics 0500, 0501, 0502, 0503, 0506. This sequence, to be taken in whole or in part, is designed for the needs of students in certain areas in biology and psychology, the social sciences, education, computer science, and medicine, as well as those with a general cultural interest in mathematical ideas and methods. These courses are in the Service Course list.

It is not intended that students elect courses from both this sequence and the Basic Sequence. Students who for some special reason wish to do so should obtain the consent of an adviser in the Mathematics Department, and must expect some loss of credit. The one exception to this rule is that Mathematics 0211 may be used in place of Mathematics 0500 as a prerequisite for Mathematics 0501 without loss of credit.

Pre-Business Administration — Mathematics 0150 (or equivalent for transfer students) is required in this curriculum.

Pre-Education — The student in elementary education normally elects one of the sequences, Mathematics 0111, 0112, 0113 or Mathematics 0120, 0121, 0122. For choice of sequence see the prerequisites listed in the course description of Mathematics 0120.

Non-Technical Course in Concepts — Mathematics 0300, whose description will be found in the Service Course list, is designed for students in non-mathematical fields who are interested in learning about the nature of modern mathematics and its relation to our culture.

ADVANCED COURSES FOR NON-MAJORS

Because of the fundamental role that mathematics plays in all types of scientific and technical endeavor, the advanced course offerings of the Mathematics Department must serve a group considerably larger than those preparing for a career in mathematics alone.

Economics and Business Administration — Mathematics 0583, 0586, and 0587 may be recommended for students in economics and business administration.

Engineering and Physical Applications — For those interested in engineering and physical applications of mathematics, the department offers the courses in its applied sequence, Mathematics 0520, 0521, 0522, 0523, 0524, 0525, 0624, 0625, and Computer Science 0561, 0562, and 0563. Students who feel that they eventually would like to pursue mathematical studies beyond the level of the applied sequence should make every effort to take the mathematics sequences which begin with courses 0510, 0542, and 0660 respectively. This will help prepare them to work with and understand some of the more abstract notions that they will meet in the advanced courses.

STATISTICS

Beginning students are referred to Statistics 0102. For students in the social sciences who have had Mathematics 0500,

Mathematics 0503 is recommended. Students in engineering and the physical sciences should consider Mathematics 0504 and 0505. Those whose work demands a good foundation in mathematical statistics are referred to Mathematics 0580, 0581, and 0582.

BACHELOR OF ARTS

In addition to satisfying the general requirements of the College of Liberal Arts for this degree, the candidate must complete the Basic Sequence and then continue with option A, B, C, or D as described below. Students intending to go on to graduate study in mathematics are advised to elect option A.

BACHELOR OF SCIENCE

In addition to satisfying the general requirements of the College of Liberal Arts for this degree, the candidate must complete the Basic Sequence, elect mathematics option A, complete Physics 0217, 0218, and 0219, and satisfy the Liberal Arts group requirement in foreign language by choosing French, German, or Russian. A candidate for the Bachelor of Science degree in another department who wishes to include mathematics as a second major may substitute option B or D for option A.

OPTIONS

The requirements of the various options are as follows:

Option A

1. The Basic Sequence (Mathematics 0211, 0212, 0213, 0214, 0215, and 0519).
2. Mathematics 0580, 0510, 0511, 0512, 0521, 0542, 0543, and 0544.
3. One additional course selected from (a) mathematics courses numbered 0500 or above applicable to degree work in mathematics, or (b) computer science courses numbered 0460 or higher, except Computer Science 0501. Mathematics service courses may not be used to satisfy this requirement. Students in the combined curriculum for secondary teaching should take Mathematics 0636.
4. Satisfaction of the Liberal Arts foreign language requirement by the choice of French, German, or Russian.

Option B

1. The Basic Sequence.
2. Mathematics 0580 (or 0221), 0510, 0511, 0513, 0514 or 0542, and 0521.
3. One additional course selected from (a) mathematics courses numbered 0500 or above applicable to degree work in mathematics or (b) computer science courses numbered

0460 or higher, except Computer Science 0501. Mathematics service courses may not be used to satisfy this requirement. Students in the combined curriculum for secondary teaching should take Mathematics 0636.

4. Satisfaction of the Liberal Arts foreign language group requirement (French, German, or Russian recommended).

Option C

This option is available only to students in the Combined Curriculum for Secondary Teaching.

1. The Basic Sequence.
2. Mathematics 0510, 0636, 0637, and 0638.
3. Mathematics 0511 or 0513 or 0530.
4. Two additional courses selected from (a) mathematics courses numbered 0500 or above applicable to degree work in mathematics, or (b) computer science courses numbered 0460 or higher, except Computer Science 0501. Mathematics service courses may not be used to satisfy this requirement.
5. Satisfaction of the Liberal Arts foreign language group requirement (French, German, or Russian recommended).

Option D

This option is designed for mathematics majors with a strong interest in computer science.

1. The Basic Sequence.
2. Mathematics 0580, 0510, 0513, and Computer Science 0201, 0220, 0221, 0320, 0440, 0460.
3. Two additional courses selected from group (a) Mathematics 0511, 0514, 0521, 0542, or group (b) Computer Science 0510, 0520, 0530, 0540, 0560, 0561, 0562, and Mathematics 0535. A student may choose any two of the above courses, but those who wish to do graduate work in mathematics should choose both courses from group (a), and those who wish to do graduate work in computer science should choose both courses from group (b).
4. Satisfaction of the Liberal Arts foreign language group requirement (French, German, or Russian recommended).

Total Hours in Major — Students may take no more than sixty-eight credits in mathematics and no more than sixty-eight credits in computer science.

Honor Point Average — For majors, the honor point average in mathematics (MAT) courses must be at least 2.0. The major who elects option D must satisfy this requirement and also have an average of 2.0 or higher in computer science (CSC) courses.

Combined Curriculum for Secondary Teaching — Under the Combined Curriculum (see Teacher Preparation Curricula), it is possible to earn a bachelor's degree in mathematics and at the same time a secondary teaching certificate. Students in this curriculum may satisfy the mathematics part of their

degree requirements by any of the degree programs specified above. Those students who are admitted into and complete the Combined Curriculum for Secondary Teaching may satisfy the mathematics requirements for the Bachelor of Arts with a major in mathematics by electing option C (above). It is stressed, first, that students in the combined curriculum with education are the only ones who may use option C, and, second, that these students are not restricted to option C but may use options A, B, or D if they choose.

Language Recommendations—The department recommends that its majors take at least two quarters of foreign language beyond the group requirement. This additional work could be in a second foreign language.

Double Major—Students whose field of concentration is closely related to mathematics and who have an independent interest in mathematics should consider the declaration of a double major with mathematics. It is usually possible to combine the work of a mathematics major with one in physics or chemistry. The growing use of mathematical methods in the life sciences, the social sciences, and in the operation of large government and industrial organizations makes the mathematics major program a rewarding educational experience for students interested in these fields.

Honors Program for Majors—In order to graduate with honors in mathematics a student must satisfy the requirements for a Bachelor of Science degree, must take the Honors Advanced Calculus (see below), and must fulfill a Senior Task. The student must also complete one interdisciplinary seminar from the Liberal Arts Honors Program (see page 336.) Interested students should consult a member of the Mathematics Honors Committee while still in the Basic Sequence.

Honors Advanced Calculus—The Advanced Calculus sequence, Mathematics 0419, 0420, 0421, is designed not only for students in the Mathematics Honors Program, but also for the well-prepared student in engineering, physics, and other studies who desires a thorough understanding of the calculus. This twelve-credit sequence constitutes a one year sequence normally beginning each fall quarter; a student completing this sequence need not take Mathematics 0213, 0519, 0520, and 0521 (fifteen credits).

Only students who intend to take the complete sequence should enroll. A 3.0 average, or higher, in Mathematics 0211, 0212, 0214, and 0215 is required for admittance to the sequence.

Honors Sections in the Basic Sequence—An Honors section in Mathematics 0212 is taught in the winter quarter, and one in Mathematics 0214 in the spring quarter. A 3.0, or higher, average in Basic Sequence courses already taken is required for admittance.

ADMISSION TO GRADUATE STUDY

All applicants must meet the general standards for admission to graduate study as determined by the University. See page 19 in this bulletin.

Except for the program leading to the degree of Master of Arts in Applied Mathematics, the entrance requirements for the master's programs in mathematics and statistics are successful completion of eighteen quarter credits (twelve semester credits) in mathematics beyond sophomore calculus (equivalent to the Basic Sequence described above); this course work should include advanced calculus and linear or modern algebra. Courses, such as the history of mathematics or the teaching of mathematics, in which the study of mathematics itself is not the primary purpose will not be counted towards this requirement. As preparation for graduate study, the Mathematics Department strongly recommends undergraduate course work along the line of the option A, bachelor's degree, described above.

Applicants for the program leading to the degree of Master of Arts in Applied Mathematics must have either eighteen credits beyond the calculus sequence or knowledge equivalent to Mathematics 0211-0215, 0513, 0519, 0521, Computer Science 0220, or 0280 and a good background in some area in which he or she is planning to apply mathematics. A bachelor's degree in mathematics is not required.

Doctoral applicants must have completed a master's degree in mathematics or reached an equivalent level of advancement. The department Graduate Committee may make exceptions to this rule in cases where unusual ability has been demonstrated. Admission to the doctoral program will be granted only to those whose records indicate an ability to succeed in advanced study and research.

Students interested in graduate study in computer science are referred to the discussion preceding the list of computer science courses. (See page 283.)

GRADUATE DEGREES

All graduate degrees are governed by general University regulations. Information concerning these may be found in the Liberal Arts Academic Procedures section of this bulletin (page 242) and also in the Graduate Division section (page 19). Degree applicants are expected to inform themselves concerning these regulations and to take the responsibility of conforming to them. Additional requirements for specific graduate degrees in mathematics are explained below.

MASTER OF ARTS

The requirements for the Master of Arts degree with a major in mathematics are as follows:

1. Forty-eight credits earned in accordance with plan A, or forty-five credits in accordance with plans B or C. These plans are described below.
2. Election of all the following courses not previously completed: Mathematics 0510, 0511, 0512, 0542, 0543, 0544, 0660, 0661.
3. Election of at least two of the following if not previously completed: Mathematics 0522, 0524, 0525, 0580, 0581, 0582, 0583, 0586, 0587, 0591, 0624, 0625, and Computer Science 0561.

4. Election of at least one of the following: Mathematics 0612, 0613, 0626, 0641, 0650, 0664, 0665, 0726, 0728, 0742, 0751, 0760.

5. By the time eighteen credits have been earned a *Plan of Work*, approved by a departmental adviser, should be submitted to the director of the master's program in mathematics. At this time the Graduate Committee will act on the application for candidacy. The student will not be allowed to take more than eighteen credits in the master's program unless candidacy has been established.

6. In the *Plan of Work* the student will state his or her choice of one of the following plans:

Plan A — Completion of a thesis for twelve credits with the remaining credit earned in course work.

Plan B — Completion of an essay for three or four credits with the remaining credit earned in course work.

Plan C — All credits earned in course work. The final oral examination (see below) is compulsory in this plan.

The choice of plan must be approved by the Graduate Committee.

7. There is a final oral examination for the master's degree. All students in Plan C are required to take this examination. Students in Plan A or B may, upon recommendation of the thesis or essay adviser, be excused from the final oral examination by the Graduate Committee.

8. Students in Plan A or B are required to present their thesis or essay in a public lecture.

NOTE — Candidates for the Master of Arts degree with a major in mathematics or in mathematical statistics are exempt from the requirement that eight credits in the major field must be in courses numbered 0700 and above.

Computer Science Cognates — For students interested in computer science, suitable cognates are: Computer Science 0560, 0561, 0562, 0563, 0610, 0620, 0670, 0675, 0760.

Secondary Teaching Option — To exercise this option a student should declare specialization in secondary teaching on the *Plan of Work*. The student should also have, or be in the process of obtaining, a certificate to teach in the secondary schools. Once approved for this option the student may, if desired, modify the requirements for the Master of Arts degree in any or all of the following ways:

a) substitute the sequence Mathematics 0513, 0514, 0638 for the sequence 0542, 0543, 0544 in satisfying requirement 2.

b) substitute Mathematics 0637 for 0580 in satisfying requirement 3.

c) add Mathematics 0636 to the list of optional courses used in satisfying requirement 4.

Master of Arts with a Major in Mathematical Statistics

The requirements for this degree differ from those for the Master of Arts with a major in mathematics (see above) only

in that the three requirements 2, 3, and 4 are replaced by a single one:

2a. Election of all the following courses not previously completed: Mathematics 0510, 0511, 0512, 0542, 0543, 0544, 0580, 0581, 0582, 0700, 0701. Mathematics 0751 is recommended.

It is stressed that all other requirements (1, 5, 6, and 7 above) are the same, except that the essay under Plan B must be written in the area of mathematical statistics.

Master of Arts in Teaching College Mathematics

The requirements for this degree coincide with those for the Master of Arts with a major in mathematics (see above) except that:

a) a total of forty-eight credits is required.

b) requirements 2, 3, and 4 are replaced by a single requirement, namely, election of all of the following courses not previously completed: Mathematics 0510, 0511, 0512, 0516, 0542, 0543, 0544, 0791, 0792, 0794, and Computer Science 0561.

c) only plan B (see above) is permitted.

Master of Arts in Applied Mathematics

This degree is designed for students who are interested in applying mathematics to different areas (e.g., biology, chemistry, computer science, economics, engineering, geology, medical science, physics, psychology, social science). The program is flexible in that it does not represent the teaching of any fixed body of knowledge. It does require two areas of concentration, one of these being the major in mathematics (pure and applied) with emphasis on the applicable subjects. The second area is to be the minor field to which the student is interested in applying mathematics. Mathematical methods are emphasized.

DEGREE REQUIREMENTS

1) A minimum of forty-eight credits.

2) A minimum of twenty-four credits in mathematics courses not previously completed with number 0514 or above (except 0542, 0543, 0544, and courses for teachers).

3) At least six additional credits in mathematics courses as outlined in (2), above, or in Computer Science 0561, 0562, 0563.

4) Each student must declare a minor (e.g., one of the areas mentioned above) in which he or she is planning to apply mathematics, and have at least twelve credits in that area.

5) The entire program of study must be a coordinated one that meets with the approval of the student's adviser. At the time of admission to this program, a student will be assigned an adviser to help plan his or her program.

Each student in this program will ordinarily be required to write a project-type essay with three to four credits under

the direction of a supervisor in the Mathematics Department and an adviser from some department related to the minor area.

The selection of advisers and topics must be approved by the Graduate Committee of the Mathematics Department.

DOCTOR OF PHILOSOPHY

All applicants for the degree of Doctor of Philosophy with a major in mathematics are urged first to study the general University requirements for this degree and to plan their programs so that all those requirements are fulfilled in the proper order and at the proper times. Listed below are the major steps in earning this degree. Specific requirements of the Mathematics Department are included.

Foreign Language Requirement—Candidates for the Ph.D. degree in mathematics must satisfy the following two-part foreign language requirement:

(1) Satisfactory performance on a standardized (ETS) examination, or satisfactory completion of two years of college level course work, in one of the following languages: French, German, or Russian. Students who elect to satisfy this part of the requirement by course work are also required to pass a reading examination of the mathematical literature in the same language. This examination will be administered by the Department of Mathematics.

(2) Satisfactory performance on a reading examination of the mathematical literature in a foreign language other than the one selected under (1). The language selected for the reading examination, as well as the examiner, must be approved by the Graduate Committee.

Completion of part (1) of the foreign language requirement must precede admission to the qualifying examination.

Qualifying Examination—This is a written and oral examination. The student is to take the written part of the qualifying examination approximately one year of full-time study. Specifically, the student should not have taken more than thirty credits in 0700-level courses before taking the written part of the qualifying exam.

The Mathematics Department feels that the areas of algebra, complex analysis, real analysis, and topology are basic, and therefore requires each Ph.D. student to complete successfully the basic graduate sequences or take the qualifying examination in these areas before the student is admitted to candidacy. These sequences are, respectively: MAT 0742, 0743; 0660, 0661; 0751, 0752; 0728, 0729.

The written part of the qualifying examination tests the student in four areas: a primary area, which may be one of the basic areas or probability or statistics or computer science, and three secondary areas, each of which must be a basic area.

The oral part of the qualifying examination is to follow within thirty days after certification by the graduate committee of the written part; it will cover the student's major area

which is to be identical with the primary area in the written examination, and a minor area to be selected by the student from the secondary areas of the written examination. The graduate committee and the student's adviser may also include other topics. The student shall receive advance notification of such additions.

Final Oral Examination—The candidate must pass a final oral examination covering his research after his adviser has approved his completed dissertation.

FELLOWSHIPS, ASSISTANTSHIPS, SCHOLARSHIPS

A number of graduate assistantships and research fellowships are available for graduate students. Requests for information should be addressed to the Chairman of the Department of Mathematics.

COURSES OF INSTRUCTION¹ (MAT)

Undergraduate Courses

0095. Algebra. 4 hours.

No degree credit. Offered for S and U grades only. Prereq: one unit of high school algebra. Real number system, operations with algebraic expressions, exponents and radicals, linear equations, systems of two and three linear equations, solutions of quadratic equations by method of factoring; elementary geometry. (For students who need a review of high school algebra and geometry.)

0178. First Course in Elementary Functions. Cr. 3.

Only one credit toward graduation, if the student has also taken Mathematics 0150. Prereq: satisfactory score on qualifying examination or completion of MAT 0095 with consent of instructor. Properties and graphs of polynomials, rational functions, exponential and logarithmic functions, and complex numbers.

0179. Second Course in Elementary Functions. Cr. 3.

Only one credit toward graduation, if the student has taken Mathematics 0150. Prereq: MAT 0178. Continuation of Mathematics 0178. Numerical and analytic trigonometry, analytic geometry of lines and conics.

0180. Elementary Functions. Cr. 5.

No credit after Mathematics 0178 or 0179; only 2 credits toward graduation after Mathematics 0150. Prereq: satisfactory score in qualifying examination based on one and one-half units of high school algebra, one unit of high school geometry. The properties and graphs of polynomials, rational functions, trigonometric functions, exponentials and logarithms; properties and graphical representation of complex numbers.

0205. Analytic Geometry. Cr. 2.

Prereq: MAT 0211. Lines, conics and general curves in two dimensions; rotations and translations; polar, cylindrical and spherical coordinates; space curves, cylinders, and quadric surfaces.

*0211. Calculus of Functions of One Variable I. Cr. 4.

No credit after Mathematics 0151 or 0500. Prereq: MAT 0179 or

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

* For recommended order of election, see page 342.

0180 or satisfactory score or qualifying examination. Concept and interpretation of the derivative and integral; differentiation of rational functions, sine, and cosine; the indefinite integral, area under a curve, the definite integral.

***0212. Calculus of Functions of Several Variables I. Cr. 4.**

Prereq: MAT 0211. Vectors and coordinate systems in two and three dimensions; lines, planes, and conic sections; functions of several variables, partial derivatives.

***0213. Elementary Linear Algebra. Cr. 4.**

Prereq: MAT 0211. Introduction to linear systems, matrices, linear transformations, bases, dimension, determinants, inner products and Eigenvalue methods.

***0214. Calculus of Functions of Several Variables II. Cr. 4.**

Prereq: MAT 0212 and 0215. Gradient, directional derivatives; multiple integrals; infinite series.

***0215. Calculus of Functions of One Variable II. Cr. 4.**

Prereq: MAT 0211. Methods of integration; applications of the definite integral to area, volume, arc length, and surface area; derivatives and integrals of trigonometric functions, logarithms, and exponential functions.

0221. Elementary Probability. Cr. 4.

Prereq: MAT 0211. No credit after Mathematics 0580 or 0637. Finite sample spaces, probability of events, random variables, mean, variance, joint probability functions, sample mean, counting techniques.

Undergraduate and Graduate Courses

Prerequisites — Knowledge of analytical geometry and calculus is normally a prerequisite for all upper division and graduate courses in mathematics. Mathematics 0211, 0212, 0213, 0214, 0215, and 0519 make up the six-quarter Basic Sequence which is used for this preparation.

0419. Linear Algebra and Differential Equations: Honors Program. Cr. 4.

No credit after Mathematics 0519. Prereq: 3.0 h.p.a. in MAT 0211, 0212, 0214 and 0215. Students who intend to take this course need not take Mathematics 0213. Matrices and linear transformations; inner products; characteristic vectors; first order differential equations; algebraic methods in systems of linear differential equations.

0420. Advanced Calculus I: Honors Program. Cr. 4.

Prereq: MAT 0419. Infinite series; series solutions of differential equations; Taylor's Theorem and maxima and minima for several variables; uniform convergence; improper integrals; Gamma function.

0421. Advanced Calculus II: Honors Program. Cr. 4.

Prereq: MAT 0420. Implicit function theorem, line and surface integrals; Green's Theorem; Divergence Theorem, Stoke's Theorem.

0490. Directed Study: Honors Program. Cr. 2-6.

Prereq: admission to Honors Program by Mathematics Honors Committee. Independent study.

0510. Introduction to Analysis I. Cr. 4.

Prereq: MAT 0519. The real number system; set theory; metric spaces; sequences and series.

0511. Introduction to Analysis II. Cr. 4.

Prereq: MAT 0510. The basic theorems of continuous functions; theory of differentiation; and the Riemann-Stieltjes integral.

0512. Introduction to Analysis III. Cr. 4.

Prereq: MAT 0511. Continuation of integration theory; sequences and series of functions.

0513. Linear Algebra I. Cr. 4.

No credit after Mathematics 0544. Prereq: MAT 0213 and 0214. Vector spaces, linear transformations and matrices, rank and nullity, Euclidean spaces, determinants.

0514. Linear Algebra II. Cr. 4.

No credit after Mathematics 0544. Prereq: MAT 0513. Equivalence and similarity, characteristic vectors, canonical forms, quadratic forms.

0516. Elements of Geometry. Cr. 4.

Only three credits toward graduation after Mathematics 0636. Prereq: The Basic Sequence. Students who intend to take Mathematics 0636 should not take this course. Brief review of analytic geometry of space using vector methods; projective geometry of one, two and three dimensions; homogeneous coordinates.

0517. Topics in Geometry. Cr. 4.

Prereq: MAT 0513 and 0516. Axioms for projective geometry; coordinatization of Desarguean projective geometries; collineations and correlations; pole and polar theory of conics and quadrics; non-Euclidean geometries.

†0519. Differential Equations. Cr. 4.

Prereq: MAT 0213, 0214 and 0215. First order differential equations; linear differential equations with constant coefficients; series solutions.

0520. Vector Analysis. Cr. 3.

Prereq: MAT 0519. Vector functions of one variable scalar and vector fields, line and surface integrals, divergence theorem, Green's theorem, Stoke's theorem, curvilinear coordinates.

0521. Advanced Calculus. Cr. 4.

Prereq: MAT 0519. Taylor's theorem, maxima and minima for functions of several variables, LaGrange multipliers, infinite series, Fourier series, Legendre polynomials, improper integrals, the Gamma function, Jacobians, implicit function theorems, change of variable in a multiple integral.

0522. Applied Analysis I. Cr. 4.

Prereq: MAT 0521 or equiv. Partial differential equations of mathematical physics; orthogonal functions; Sturm-Liouville problems; Fourier series; Bessel functions and Legendre polynomials with applications to boundary value problems.

0523. Applied Analysis II. Cr. 4.

Prereq: MAT 0521. Introduction to complex analysis; Cauchy integral theorem; residue calculus; conformal mapping.

0524. Applied Analysis III. Cr. 4.

Prereq: MAT 0522 and 0523. Properties of the Laplace and Fourier transformations; the Laplace and Fourier inversion in t ; applications to partial differential equations.

†No credit (major, minor, or cognate) is awarded for this course toward a graduate degree in mathematics or statistics.

* For recommended order of election, see page 342.

0525. Tensor Analysis. Cr. 3.

Prereq: MAT 0521 and some knowledge of linear algebra. Tensors under orthogonal and affine transformations. Algebraic operations and symmetries. Tensor fields under transformation to curvilinear coordinates. Integral theorems. Covariant differentiation. Applications to mechanics of continua and physical fields.

0530. Elementary Theory of Numbers. Cr. 4.

Prereq: MAT 0214 and 0215. Unique factorization theorem; order of magnitude of arithmetic functions; congruences, quadratic residues, law of reciprocity; continued fractions; elements of geometry of numbers; second part of number theory.

0532. Elementary Topology of Surfaces. Cr. 3.

Prereq: MAT 0213 and 0214. An intuitive approach to the topology of surfaces. Classification of triangulated surfaces by cut and paste techniques; sphere, torus, mobius strip, Klein bottle, projective plane; Euler characteristic.

0535. (PHI 0535) Logical Systems I. Cr. 4.

Prereq: PHI 0130 or 0221, or MAT 0510 or 0542 or consent of instructor. Meta-results concerning formal systems for sentential logic and first-order predicate logic; soundness, completeness; independence of axioms.

0539. (PHI 0539) Logical Systems II. Cr. 4.

Prereq: MAT 0535 or consent of instructor. Godel's incompleteness theorem for elementary arithmetic; Tarski's theorem; Church's theorem.

0540. Theory of Sets I. Cr. 3.

Prereq: MAT 0510. Set operations, cardinal numbers, order types, ordinal numbers.

0541. Theory of Sets II. Cr. 3.

Prereq: MAT 0540. Well-ordering theorem and applications, continuum problem, Borel and Souslin sets.

0542. Algebra I. Cr. 4.

No credit after Mathematics 0638. Prereq: MAT 0519. Groups, permutations, normal sub-groups, homomorphisms.

0543. Algebra II. Cr. 4.

Prereq: MAT 0542. Rings and ideals, polynomial rings, integral domains, fields, vector spaces and modules.

0544. Algebra III. Cr. 4.

No credit after Mathematics 0514; only two credits toward graduation after Mathematics 0513. Prereq: MAT 0543. Linear transformations and matrices, characteristic vectors, Jordan and rational canonical forms, Hermitian and unitary transformations.

0550. Problem Solving. Cr. 1-3 (Max. 9).

Prereq: consent of instructor. Problems from a specific area of mathematics. Topics to be announced in *Schedule of Classes*.

0555. Approximation Theory. Cr. 4.

Prereq: MAT 0521. The problem of linear approximation; Tschebyscheff approximations; approximations by algebraic and trigonometric polynomials; approximations by rational functions; approximation of functions of several variables.

580. Probability and Stochastic Processes I. Cr. 4.

No credit after Mathematics 0221 and 0637. Only 2 credits toward graduation after either Mathematics 0221 or 0637. Prereq: MAT 0214 and 0215. Sample space, combinatory analysis, basic prob-

ability theorems, conditional probability, independence; binomial, normal, Poisson's distributions.

0581. Probability and Stochastic Processes II. Cr. 3.

Prereq: MAT 0580, or 0221 and consent of instructor. Random variables, transformation of variables, limit theorems, generating functions.

0582. Survey of Statistical Methods. Cr. 4.

Prereq: MAT 0580. Statistical methods in estimation, testing hypotheses, linear models and non-parametrics.

0583. Introduction to Theory of Games. Cr. 3.

Prereq: MAT 0214 and 0215, or 0502. Fundamental notions; saddle points; minimax theorem for rectangular games in extensive form; games with complete and incomplete information.

0586. Introduction to the Theory of Linear Programming. Cr. 3.

Prereq: MAT 0213 or 0502. The principles of linear programming, the duality theorem, simplex methods; applications to industrial and business problems.

0587. Linear Programming and Operations Research. Cr. 4.

Prereq: MAT 0213 and 0214, or 0502; or consent of instructor. Operations-research models and economic decisions, their mathematical basis and economic meaning; computation techniques. Simplex method. Transportation problems. Inventory models. Queuing models.

0590. Directed Study. Cr. 1-5 (Max. 12).

Prereq: undergrad., consent of adviser and written consent of chairman; grad., consent of adviser and written consent of chairman and graduate officer. Undergraduates who elect this course must be mathematics majors of honors caliber. Content will vary to satisfy needs of individual student.

0591. Applied Stochastic Processes. Cr. 4.

Prereq: MAT 0581 or consent of instructor. Non-measure theoretic introduction to theory of stochastic processes and its applications, with emphasis on Markov processes and stationary processes.

0612. Graph Theory. Cr. 4.

Prereq: MAT 0513 or 0544 or consent of instructor. Graphs and directed graphs, trees, cycles and circuits, connectivity, planar graphs and coloring questions, graphs and matrices, graphs and groups, Polya's Theorem and counting problems.

0613. Combinatorial Mathematics. Cr. 4.

Prereq: MAT 0542 or consent of instructor. Permutations and combinations, generating functions, principles of inclusion and exclusion, matrices of zeroes and ones, block designs, matroids.

0618. Recursive Function Theory (PHI 0618). Cr. 4.

Prereq: MAT 0510 and 0542, or 0535, or consent of instructor. Computable operators; primitive recursive functions, recursively enumerable sets; recursive and partially recursive functions; numbered sets (Godel, Kleene and Post numberings); algorithms and Turing machines; unsolvable problems and degrees of unsolvability.

0624. Applied Functional Analysis I. Cr. 3.

Prereq: MAT 0510 or consent of instructor. Operator techniques in Hilbert and Banach spaces; function spaces which appear in applications and their properties; solution of operator equations in Banach spaces; selected problems.

0625. Applied Functional Analysis II. Cr. 3.

Prereq: MAT 0624. Continuation of Mathematics 0624 with emphasis on nonlinear techniques in Banach spaces.

0626. Algebraic Theory of Numbers. Cr. 4.

Prereq: MAT 0544. General arithmetic in algebraic number fields; algebraic integers; ideals, fundamental theorem of ideal theory, ideal classes, Dirichlet's unit theorem, prime ideal theorem, determination of class number, Gaussian sums.

0636. Topics in Mathematics for High School Teachers I. Cr. 4.

Only 3 credits toward graduation after Mathematics 0516. Prereq: MAT 0213, 0214, and 0215. Modern geometry; Euclidean geometry based on Hilbert's axioms; projective and affine planes; non-Euclidean geometries.

0637. Topics in Mathematics for High School Teachers II. Cr. 4.

No credit after Mathematics 0580. Only 2 credits toward graduation after Mathematics 0221. Prereq: MAT 0213, 0214, and 0215. Combinatorial analysis; basic concepts and methods of probability and statistical inference.

0638. Topics in Mathematics for High School Teachers III. Cr. 4.

No credit after Mathematics 0542. Prereq: MAT 0213, 0214, 0215. Algebraic structure: rings, integral domains, fields, groups; applications to polynomials and theory of equations.

0641. Differential Geometry I. Cr. 3.

Prereq: MAT 0213, 0510, 0521 and some knowledge of implicit function theorem. Classical differential geometry of curves and surfaces in E^3 .

0642. Differential Geometry II. Cr. 3.

Prereq: MAT 0641. Intrinsic geometry of surfaces; global differential geometry.

0650. Theory of Functions of Several Variables. Cr. 4.

Prereq: MAT 0512; and 0514 or 0544, or consent of instructor. Calculus of functions of several variables from the abstract point of view. The modern notion of the differential, implicit function theorem, differential forms, exterior differentiation, integration over surfaces, generalized Stoke's theorem.

0660. Complex Analysis I. Cr. 4.

Prereq: MAT 0512. Linear transformations, elementary functions, complex differentiation, Cauchy's integral theorem, power series, analytic continuation, monodromy theorem.

0661. Complex Analysis II. Cr. 4.

Prereq: MAT 0660. Laurent expansion; residue theorem; singularities; entire, meromorphic, and periodic functions.

0664. Ordinary Differential Equations I. Cr. 3.

Prereq: MAT 0512; MAT 0514 or 0544 recommended. Existence and uniqueness theory; dependence of solutions on initial conditions and parameters; linear systems with constant and periodic coefficients.

0665. Partial Differential Equations I. Cr. 3.

Prereq: MAT 0512; MAT 0660 recommended. Characteristic theory for first order equations; Cauchy-Kowalewski theorem; uniqueness of solutions of second order elliptic equations; properties of potential function.

0675. Fluid Dynamics. Cr. 4.

Prereq: MAT 0522 and either 0523 or 0660; or consent of instructor. Mathematical foundations of theory of viscous Newtonian fluids; Navier-Stokes equations; specialization to perfect and inviscid compressible fluids.

0683. Design of Experiments. Cr. 3.

Prereq: MAT 0582. Randomized blocks; Latin and Graeco-Latin

squares; factorial designs, confounding, split plot, fractional replication, balanced incomplete blocks.

0691. Topics in Applied Mathematics. Cr. 3-4 (Max. 12).

Prereq: MAT 0523 or 0661. Topics such as: elliptic functions, Bessel functions, Legendre functions and spherical harmonics, systems of orthogonal functions in mathematical physics.

Graduate Courses

0700. Mathematical Statistics I. Cr. 3.

Prereq: MAT 0582. Characteristic functions, limit theorems, sampling distributions; formulation of decision problems; estimation theory (sufficiency, invariance, minimax); applications and problems.

0701. Mathematical Statistics II. Cr. 3.

Prereq: MAT 0700. Testing hypotheses theory (Neyman-Pearson and decision theory approaches); linear models; regression on sure and random variables, and as approximation; applications and problems.

0705. Group Theory. Cr. 3.

Prereq: MAT 0743 or consent of instructor. Selected topics from the theory of p-groups, nilpotent groups, solvable groups, and simple groups.

0710. Homological Algebra I. Cr. 3.

Prereq: MAT 0744. Modules; categories and functors; tensor, Hom, Tor, and Ext.

0711. Homological Algebra II. Cr. 3.

Prereq: MAT 0710. The dimension of rings and modules; derived functors; cohomology of groups and algebras.

0713. Structure of Rings and Fields. Cr. 4.

Prereq: MAT 0744. General field extensions and the transcendence basis; algebraically closed fields; elementary Galois theory; the Wedderburn structure theorems for semi-simple and simple rings with minimum condition.

0719. Hilbert Space. Cr. 4.

Prereq: MAT 0751; Mathematics 0752 recommended. Geometry of Hilbert space, the spectral theorem, commuting operator, rings of operators.

0720. Linear Spaces I. Cr. 3.

Prereq: MAT 0751. Linear topological spaces; uniform boundedness, interior mappings, Hahn-Banach theorem; vector lattices.

0721. Linear Spaces II. Cr. 3.

Prereq: MAT 0720. Krein-Milman theorem; inversion theorem, duality, properties of weak topologies.

0722. Banach Algebra. Cr. 4.

Prereq: MAT 0721. Stone's representation theorem, Gelfand representation of normed algebra, analytic function on an algebra, Wiener's Tauberian theorems, Haar integral on a group, almost periodic functions, character group, positive definite functions, Fourier transforms, Plancherel's theorem.

0723. Locally Convex Spaces. Cr. 4.

Prereq: MAT 0721. Convex sets and locally convex spaces, inductive limits, tonnelle and bornological spaces, theorems of Mackey, spaces of transformations; duality in locally convex spaces; LF-spaces and theory of distributions.

0724. Semigroups of Operators. Cr. 4.

Prereq: MAT 0719, 0720, or consent of instructor. Fundamental operators of semigroup theory and their properties, generation of semigroups, semigroups in concrete Banach spaces, perturbation theory, equivalent semigroups, approximation of semigroups. Applications to differential equations, Markov processes, and mathematical physics.

0726. Analytical Theory of Numbers. Cr. 4.

Prereq: MAT 0660. Prime number theorem and zeta-function; character sums and arithmetic progressions; partitions and the circle method.

0728. General Topology I. Cr. 4.

Prereq: MAT 0512 or consent of instructor. Metric spaces, topological spaces, separation axioms, convergence, connectedness, compactness, continuous functions, product spaces, quotient spaces.

0729. General Topology II. Cr. 3.

Prereq: MAT 0728. Quotient spaces continued, metrization theorems, uniform spaces, function spaces, selected topics.

0730. General Topology III. Cr. 3.

Prereq: MAT 0729. Homotopy, maps into spheres, manifolds, and selected topics.

0731. Algebraic Topology I. Cr. 3.

Prereq: MAT 0730. Homology and cohomology theories.

0732. Algebraic Topology II. Cr. 3.

Prereq: MAT 0731. Fundamental groups and higher homotopy groups, and selected topics.

0734. Topological Groups. Cr. 3.

Prereq: MAT 0544 and 0728. Basic properties; compact and locally compact groups; Haar measure and integration on locally compact groups; group algebras.

0742. Advanced Algebra I. Cr. 4.

Prereq: MAT 0544 or consent of instructor. Groups, categories and functors, free groups, finitely generated groups; rings and homomorphisms, commutative rings, modules, homology, polynomials, Noetherian rings, modules over principal ideal rings.

0743. Advanced Algebra II. Cr. 4.

Prereq: MAT 0742 or consent of instructor. Field theory, algebraic extensions, Galois theory, extensions of rings, transcendence extensions, valuation rings.

0744. Advanced Algebra III. Cr. 4.

Prereq: MAT 0743 or consent of instructor. Linear algebra and representations, matrices, bilinear forms, multi-linear products, semi-simplicity, density theorem, group representations.

0746. Abelian Groups I. Cr. 3.

Prereq: MAT 0544. Finitely generated groups, free groups, divisible groups, structure theorems.

0747. Abelian Groups II. Cr. 3.

Prereq: MAT 0746. Structure theorems, basic sub-groups, groups without elements of infinite height, mixed groups, torsion free groups.

0748. Abelian Groups III. Cr. 3.

Prereq: MAT 0747. Endomorphism rings, homological methods in Abelian groups.

0750. Advanced Problem Solving. Cr. 3 (Max. 9).

Prereq: consent of instructor. Problem solving in selected advanced areas of mathematics. Topics to be announced in *Schedule of Classes*.

0751. Theory of Functions of a Real Variable I. Cr. 4.

Prereq: MAT 0512. Lebesgue measure of E_n ; general and Carathéodory measure; classes (BV, AC) of set, point, and interval functions; Lebesgue-Stieltjes integrals.

0752. Theory of Functions of a Real Variable II. Cr. 4.

Prereq: MAT 0751. Fubini's theorem, classical inequalities, Vitali covering theorem, differentiation, function spaces, orthogonal functions, applications to complex functions.

0753. Theory of Functions of a Real Variable III. Cr. 4.

Prereq: MAT 0752. Generalized derivatives, the Denjoy integrals, comparison with the Lebesgue integral, function spaces, selected topics.

0755. Fourier Series I. Cr. 3.

Prereq: MAT 0752. Trigonometric and orthonormal series, summability, ordinary and absolute convergence, transformation of series.

0756. Fourier Series II. Cr. 3.

Prereq: MAT 0755. Complex methods, maximal theorems of Hardy and Littlewood, equisummability of series and integrals, interpolation of operators.

0760. Complex Analysis III. Cr. 3.

Prereq: MAT 0661. Algebraic functions, Riemann surfaces, Riemann mapping theorem.

0761. Ordinary Differential Equations II. Cr. 3.

Prereq: MAT 0664 or consent of instructor. Regular and irregular singular points; boundary value problems; stability; theory of linear systems; differential equations in complex plane, Sturm-Liouville theory.

0762. Ordinary Differential Equations III. Cr. 3.

Prereq: MAT 0761 or consent of instructor. Topology of integral curves; limit cycles and singular points; perturbation theory; stability theory of non-linear systems; periodic solutions.

0763. Partial Differential Equations II. Cr. 3.

Prereq: MAT 0665 or consent of instructor. Uniqueness of solutions of hyperbolic equations; properties of wave equations; Asgerisson's mean value theorem; characteristic theory for second order hyperbolic equations.

0764. Partial Differential Equations III. Cr. 3.

Prereq: MAT 0661 and 0665 or consent of instructor. Dirichlet problem; method of Perron, variational methods; non-linear equations and equation of Monge-Ampere; minimal surface equation; mixed type equations; *a priori* estimates.

0765. Integral Equations. Cr. 4.

Prereq: MAT 0664 or 0665 or consent of instructor. Fredholm's theorems, symmetric kernels and singular kernels, estimates for characteristic values, non-linear integral equations, applications to potential theory.

0766. Calculus of Variations. Cr. 4.

Prereq: MAT 0664 or consent of instructor. Minima of simple integrals; necessary and sufficient conditions for a minimum; Mayer fields; direct methods of Tonelli; geometrical and physical applications.

- 0770. Differentiable Manifolds I. Cr. 3.**
Prereq: MAT 0650 and 0728. Manifolds, differentiable structures, the tangent bundle, tensors.
- 0771. Differentiable Manifolds II. Cr. 3.**
Prereq: MAT 0770. Vector fields and differential equations, differential forms, integral manifolds, the DeRham Theorem.
- 0781. Mathematical Foundations of Probability. Cr. 4.**
Prereq: MAT 0581 and 0751 or consent of instructor. Probability measure spaces; random variables, convergence concepts; expectation and moments; distribution functions and their transforms; fundamental limit theorems; conditional expectation.
- 0782. Random Functions. Cr. 4.**
Prereq: MAT 0781 or consent of instructor. Infinite products of measurable spaces and Kolmogorov's theorem; separability, measurability and continuity of random functions; basic classes of random functions, in particular Markov processes, stationary processes, martingales.
- 0783. Abstract Probability. Cr. 4.**
Prereq: MAT 0720 and 0782 or consent of instructor. Abstract space-valued random variables and functions; generalized random functions; random operators and equations.
- 0784. Statistical Estimation Theory. Cr. 4.**
Prereq: MAT 0582, 0700, and 0751; or consent of instructor. Maximum likelihood method; method of least squares; unbiased estimation; best asymptotically normal estimators; minimax principle; Bayes theory; linear least squares prediction, smoothing, filtering.
- 0785. Testing of Statistical Hypotheses. Cr. 4.**
Prereq: MAT 0784. Introduction to general decision problems; Neyman-Pearson fundamental lemma; uniformly most powerful tests; unbiased and invariant tests; linear hypotheses.
- 0786. Non-Parametric Methods in Statistics. Cr. 4.**
Prereq: MAT 0785. Basic distributions; location, symmetry, independence tests; randomness; invariance and rank tests; limiting distributions and Chernoff-Savage theorem.
- 0787. Statistical Sequential Analysis. Cr. 4.**
Prereq: MAT 0785. Sequential probability ratio test; Wald's fundamental identity; Bayes procedures; two-stage estimation; estimation of parameters in stochastic processes; stochastic approximation methods.
- 0788. Statistical Multivariate Analysis I. Cr. 4.**
Prereq: MAT 0514 or 0543, and 0785. Vector distributions; covariance as an operator; radial distributions; Hankel transforms; generalized Markov least squares theory; matrix pseudoinverse; multivariate normal distribution; correlation; Hotelling's T^2 ; Wishart distribution.
- 0789. Statistical Multivariate Analysis II. Cr. 4.**
Prereq: MAT 0788. Wilk's sum of squares; multivariate linear hypotheses; Hotelling principal components; distribution of characteristic roots; distribution of quadratic forms; discriminant functions; intraclass correlation; equality of means, variances and covariances; factor analysis.
- 0790. Directed Study. Cr. 1-5 (Max. 18).**
Prereq: consent of adviser and graduate officer.
- 0791. Problems and Methods of Teaching Mathematics in the Community College I. Cr. 3-4.**
- 0792. Student Teaching of Mathematics on the Community College Level. Cr. 3-4.**
Prereq. or coreq: MAT 0791 and consent of adviser. Offered for S and U grades only.
- 0794. Problems and Methods of Teaching Mathematics in the Community College II. Cr. 3-4.**
Prereq: MAT 0791. Continuation of Mathematics 0791.
- 0799. Master's Essay Direction. Cr. 3-4.**
Prereq: consent of adviser.
- 0801. Advanced Topics in Algebra. Cr. 3-6 (Max. 18).**
Prereq: consent of instructor.
- 0802. Advanced Topics in Analysis. Cr. 3-6 (Max. 18).**
Prereq: MAT 0752.
- 0803. Advanced Topics in Differential Equations. Cr. 3-6 (Max. 18).**
Prereq: consent of instructor.
- 0804. Advanced Topics in Functional Analysis. Cr. 3-6 (Max. 18).**
Prereq: consent of instructor.
- 0805. Advanced Topics in Topology. Cr. 3-6 (Max. 18).**
Prereq: consent of instructor.
- 0806. Advanced Topics in Number Theory. Cr. 3-6 (Max. 18).**
Prereq: consent of instructor.
- 0807. Advanced Topics in Numerical Analysis. Cr. 3-6 (Max. 18).**
Prereq: consent of instructor.
- 0808. Advanced Topics in Probability. Cr. 3-6 (Max. 18).**
Prereq: consent of instructor.
- 0809. Advanced Topics in Statistics. Cr. 3-6 (Max. 18).**
Prereq: consent of instructor.
- 0810. Advanced Topics in Complex Variables. Cr. 3-6 (Max. 18).**
Prereq: consent of instructor.
- 0811. Advanced Topics in Applied Mathematics. Cr. 3-6 (Max. 18).**
Prereq: consent of instructor.
- 0812. Advanced Topics in Foundations. Cr. 3-6 (Max. 18).**
Prereq: consent of instructor.
- 0814. Advanced Topics in Differentiable Geometry and Differentiable Manifolds. Cr. 3-6 (Max. 18).**
Prereq: consent of instructor.
- 0850. Mathematics Seminar. Cr. 1-4 (Max. 12).**
Prereq: consent of instructor. Seminar in selected research areas. Students report to the seminar on recent research. Topics to be announced in *Schedule of Classes*.
- 0899. Master's Thesis Research and Direction. Cr. 2-12 (12 required).**
Prereq: consent of adviser.
- 0999. Doctoral Dissertation Research and Direction. Cr. 2-16 (45 required).**
Prereq: consent of doctoral adviser.

Service Courses

0090. Mathematics for Pre-Nursing Students. Cr. 4.

No degree credit. Offered for S or U grades only. Prereq: one unit of high school algebra. Open only to pre-nursing students. Review of arithmetic and elementary algebra. Fractions, percentage, ratio, proportions, and units of measurement. Operations with algebraic expressions, exponents and radicals, logarithms, linear and quadratic equations.

0110. General Mathematics. Cr. 3.

No degree credit in College of Liberal Arts; no credit after Mathematics 0100, 0101, and 0111. Prereq: placement test. Open only to students in teacher preparation curricula. Arithmetical operations; the number line, fundamentals of geometry.

0111. Mathematics for Elementary School Teachers I. Cr. 3.

No degree credit in College of Liberal Arts; no credit after Mathematics 0100 or 0101. Open only to students in teacher preparation curricula. Passing of a standardized basic arithmetic test, administered in class, is required to pass this course.

0112. Mathematics for Elementary School Teachers II. Cr. 3.

No degree credit in College of Liberal Arts; no credit after Mathematics 0101. Prereq: MAT 0100 or 0111. Open only to students in teacher preparation curricula. Rational and real numbers, measurement, informal geometry. Theorem of Pythagoras.

0113. Mathematics for Elementary School Teachers III. Cr. 3.

No degree credit in College of Liberal Arts. Prereq: MAT 0101 or 0112. Open only to students in teacher preparation curricula. History of numbers, recreational mathematics, elementary probability.

0120. Mathematical Topics for Elementary School Teachers I. Cr. 3.

No degree credit in College of Liberal Arts; no credit after Mathematics 0101 or 0111. Prereq: three years of high school and/or college mathematics and consent of adviser. Open only to students in teacher preparation curricula. Sets, logic, mathematical systems, elementary number theory.

0121. Mathematical Topics for Elementary School Teachers II. Cr. 3.

No degree credit in College of Liberal Arts; no credit after Mathematics 0101 or 0112. Prereq: MAT 0100 or 0120 and consent of adviser. Open only to students in teacher preparation curricula. Rational and real number systems, elementary probability and statistics; selected topics of geometry, functions and graphing.

0122. Mathematical Topics for Elementary School Teachers III. Cr. 3.

No degree credit in College of Liberal Arts. Prereq: MAT 0121. Open only to students in teacher preparation curricula. History of mathematics, figurate numbers, mathematical puzzles, graph theory, selected topics from elementary topology, curves in the plane.

0150. Finite Mathematics for the Social and Management Sciences. Cr. 4.

No credit after Mathematics 0180. Prereq: one and one-half units of high school algebra and one unit of high school geometry. Students who intend to take Mathematics 0178, 0179, or 0180 should not take this course. Finite mathematical methods for model building in the social and management sciences. Polynomial, exponential, and logarithmic functions, matrices, and linear programming.

0151. Calculus for the Social and Management Sciences. Cr. 4.

No credit after Mathematics 0211 or 0500. Prereq: MAT 0150 or equiv. Elementary techniques of calculus with particular application to the social and management sciences. Sequences and limits, differentiation, integration, and optimization.

0200. General Mathematics III. Cr. 4.

Prereq: MAT 0101 or 0113. Open only to students in the College of Education or in teacher preparation curricula. Relations, functions, trigonometry, elementary probability.

0300. Concepts of Mathematics. Cr. 4.

Prereq: one year high school algebra, one semester high school geometry. Not open to majors; no credit for science group requirements. Mathematical concepts and methods; their historical development; their significance for society. Cultural course for students who might not take any other mathematics course.

0310. Topics in Mathematics. Cr. 1-4 (Max. 8).

No major credit; no credit for science group requirements. Prereq: one year high school algebra, one semester high school geometry. Selected topics in elementary mathematics, particularly those of interest to the non-mathematician. Topic to be chosen by the instructor and announced in *Schedule of Classes*.

0340. Applied Statistics (ET 0340). Cr. 4.

No degree credit in College of Liberal Arts. Prereq: college algebra. Application of probability concepts; statistical theory in the use of engineering data.

0342. Applied Calculus I (ET 0342). Cr. 4.

No degree credit in College of Liberal Arts. Prereq: MAT 0180. Application of differential and integral calculus and analytical geometry to engineering problem situations.

0344. Applied Calculus II (ET 0344). Cr. 4.

No degree credit in College of Liberal Arts. Prereq: MAT 0342. Continuation of Mathematics 0342 including the application of ordinary differential equations to engineering problem situations.

†0500. General Mathematical Analysis I. Cr. 4.

No credit after Mathematics 0151 or 0211. Prereq: satisfactory score on qualifying examination. Brief discussion of number systems and analytic geometry; fundamentals of the differential calculus of one and two variables; applications.

†0501. General Mathematical Analysis II. Cr. 4.

Prereq: MAT 0211 or 0500 and consent of instructor. Fundamentals of integral calculus; calculus of finite differences; difference equations with constant coefficients; first and second order linear differential equations with constant coefficients; approximation of differential equations by difference equations.

†0502. General Mathematical Analysis III. Cr. 4.

Prereq: MAT 0501. Vectors, matrices as linear transformations, algebra of matrices; matrices and graphs; characteristic values and functions; similarity; systems of algebraic, difference, and differential equations; nonnegative matrices; matrices and stability theory.

†0503. Principles of Probability and Statistics: For Social Scientists. Cr. 4.

Prereq: MAT 0501. Introduction to probability, probability models in social sciences, basic probability-distributions, sampling fluctuations and distributions, elements of statistical inference, regression and correlation, nonparametric methods.

†No credit (major, minor, or cognate) is awarded for this course toward a graduate degree in mathematics or statistics.

†0504. Statistical Methods in Industry I. Cr. 4.

Prereq: MAT 0214 and 0215. Probability axioms, elementary probability calculus, probability models in physical sciences, probability and sampling distributions, estimation and testing hypotheses, application to physical problems and research.

†0505. Statistical Methods in Industry II. Cr. 3.

Prereq: MAT 0504 or consent of instructor. Statistical dependence, regression and correlation, elements of variance analysis, stochastic processes.

†0506. Introduction to Finite Mathematics. Cr. 4.

Prereq: MAT 0502 or consent of instructor. Set algebra including mappings and relations; algebraic structures including semigroups and groups; elements of the theory of directed and undirected graphs; Boolean algebra and propositional logic; applications to various areas of computer science.

†0536. Mathematics for Elementary School Teachers I (TED 5526). Cr. 4.

Credit in College of Education only. Discussion and development of the mathematics upon which much of the current elementary school mathematics curriculum is based. Sets and Venn diagrams; systems of numeration; prime numbers, least common multiple, greatest common divisor; number systems, inverses, identity, associativity, commutativity, and distributivity; modular arithmetic; notions of ratio and percentage.

†0537. Mathematics for Elementary School Teachers II (TED 5527). Cr. 4.

Credit only in College of Education. Prereq: MAT 0536. A survey of the real number system, algebraic operations, systems of linear equations, theory of equations.

†0548. Mathematics for Junior High School Teachers I (TED 5528). Cr. 4.

Credit only in College of Education. Prereq: MAT 0537. Basic concepts of Euclidean geometry; trigonometric solutions of triangles.

†0549. Mathematics for Junior High School Teachers II (TED 5529). Cr. 4.

Credit only in College of Education. Prereq: MAT 0548. Trigonometry and analytical geometry.

†0605. Mathematics for High School Teachers I. Cr. 1-6 (Max. 8).

Prereq: consent of instructor. Open only to in-service teachers under sponsorship of National Science Foundation. Selected topics from set theory, abstract algebra; geometry, and current curriculum studies in high school mathematics at ninth grade level.

†0606. Mathematics for High School Teachers II. Cr. 3-6.

Prereq: consent of instructor. Open only to in-service teachers under sponsorship of National Science Foundation. Continuation of Mathematics 0605.

†0607. Mathematics for High School Teachers III. Cr. 3-6.

Prereq: consent of instructor. Open only to in-service teachers under sponsorship of National Science Foundation. Continuation of Mathematics 0606.

†No credit (major, minor, or cognate) is awarded for this course toward a graduate degree in mathematics or statistics.

†0645. Mathematics for High School Teachers IV. Cr. 3-6.

Prereq: consent of instructor. For in-service teachers only. Selected topics from linear algebra, analytic geometry and calculus, probability and statistics, and current curriculum studies in high school mathematics at tenth grade level.

†0646. Mathematics for High School Teachers V. Cr. 3-4 (Max. 8).

Prereq: consent of instructor. For in-service teachers only. Continuation of Mathematics 0645.

†0647. Mathematics for High School Teachers VI. Cr. 1-6.

Prereq: consent of instructor. For in-service teachers only. Continuation of Mathematics 0646.

†0648. Mathematics for High School Teachers VII. Cr. 3-4.

Prereq: consent of instructor. For in-service teachers only. Continuation of Mathematics 0647.



MUSIC

Office: 105 Music Wing

Chairman: Robert F. Lawson

Associate Chairman and Liaison for Music Education:
Joseph A. Labuta

Assistant to the Chairman: Michael Zelenak

Academic Services Officer: Donald Blancett

PROFESSORS

Harold Arnoldi, Louise W. Conklin (Emeritus), Angelo M. Cucci, Mark F. DeLeonard, James A. Gibb (Emeritus), Malcolm M. Johns, Joseph A. Labuta, Harry M. Langsford, Robert F. Lawson, Wilbur J. Peterson, Valter Poole (Emeritus), Jason H. Tickton, Ruth S. Wylie (Emeritus), C. William Young

ASSOCIATE PROFESSORS

Lillian J. Cassie, Ray P. Ferguson, Morris Hochberg, Bohdan J. Kushnir, Doris Richards

ASSISTANT PROFESSORS

Celeste Cole, James J. Hartway, Marian V. Lincoln (Emeritus), Frank Murch, Richard Parks, Michael Zelenak

ADJUNCT PROFESSORS

Avery Crew (voice), Joseph Fava (guitar), Micha Kottler, (piano), Mischa Mischakoff (violin)

ADJUNCT ASSOCIATE PROFESSORS

Salvatore Rabbio (percussion), Paul Schaller (clarinet), Eugene Wade (French horn)

ADJUNCT ASSISTANT PROFESSORS

Maxine Antiochia (voice), Carl Austin (theory), Emily Austin (violin), Clement Barone (flute), George Cailotto (free bass accordian), Julius Chajes (piano), Robert Collins (string bass), Clark Eastham (piano), Robert Gladstone (string bass), Marjorie Gordon (voice), Nathan Gordon (viola), William Horner (trumpet), Elizabeth Iku (harp), Elsie Inselman (voice), Wesley Jacobs (tuba), Robert Jones (trombone and baritone), Margit Kormendy (voice), Gale Kramer (organ), Oscar LaGasse (tuba), Homer Lindsey (bassoon), Jose Mallare (saxophone), Thaddeus Markiewicz (violoncello), Boris Maximovich (piano), Ervin Montroe (flute), Ronald Odmark (oboe), Sergio Pezzetti (voice), Charles Postleware (guitar), Joan Rossi (voice), Tomasz Schwartz (piano), Joseph Skrzynski (trombone and baritone), Gordon Smith (trumpet), Darwin Swartz (piano), James Tamburini (trumpet), Bruce Weinberger (saxophone), Robert Williams (bassoon)

DEGREE PROGRAMS

Bachelor of Arts — with a major in music

Bachelor of Music — with a major in church music, composition, music education, music therapy, performance, and theory

Master of Arts — with a major in music

Master of Music — with a major in composition, theory, performance, and music education

All entering students who intend to major in music must consult the department counseling staff prior to the first registration so that a curriculum can be assigned and any transfer credits can be evaluated.

The Bachelor of Arts and Master of Arts curricula are designed for those students who wish a broad liberal education.

The Bachelor of Music and Master of Music curricula are for those students who desire professional training in music and are not for students who have had little or no background in music before entering the University. Entrance into either the Bachelor of Music or Master of Music curriculum is dependent upon approval of the divisional director for the curriculum.

Students signifying their intention to enter a Bachelor of Music program with a concentration in Music Education are examined in piano and voice for vocal music majors, and in an instrument of the band or orchestra for instrumental music majors. Only those students who meet general requirements for admission and who show marked ability and definite preparation in music will be permitted to enter this program.

Students desiring to elect Music Therapy as a major area of concentration must have a personal interview with the departmental chairman to discuss the conditions relating to this unique curriculum.

In the senior year, all undergraduate students must pass the departmental aural recognition examination of music literature.

UNDERGRADUATE MAJOR

Group Requirements of the College for all Undergraduate Degrees (see page 230)

General Education Requirements for all Undergraduate Degrees

	<i>credits</i>
English (as prescribed by English Department)	8
Social Sciences, including the American Government Requirement	16
PSY 0198, and one elective (PSY 0317 recommended)	8
Science laboratory course elective	5
Physical Science course elective	4
Humanities electives (PHI 0370 recommended; see p. 231 for restrictions)	16

Professional Education Requirements for Bachelor of Music with a Major in Music Education

As prescribed by the College of Education and Music Education Division

Core Requirements of the Department

For all undergraduate music degrees

1. MUT 0114, 0115, 0116, 0117, 0118, 0119, 0214, 0215, 0216, 0217, 0218, 0219, 0405, 0406
2. MUH 0331, 0332, 0333, 0334
3. MUA 0179, 0279, 0379, 0479

Performance Ensemble requirements for all undergraduate music majors

1. Performance Ensembles are defined as MUA 0280, 0281, 0283, 0284, 0285, 0287, 0289, and 0563.
2. All undergraduate music majors must fulfill a minimum of twelve quarters of a Performance Ensemble. Students transferring from other institutions must have their transcripts evaluated by the departmental chairman for possible advanced credit toward the Performance Ensemble requirement.
3. All undergraduate music majors who elect eight or more credits in the fall, winter and spring quarters must elect a Performance Ensemble concurrently in that quarter.
4. Specific requirements for the various curricula in music are given below:
 - a. Bachelor of Arts — any Performance Ensemble;
 - b. Bachelor of Music with a major in Composition — any Performance Ensemble;
 - c. Bachelor of Music with a Major in Instrumental Music Education —
 - (1) Winds or percussion — MUA 0280
 - (2) Strings — MUA 0281;
 - d. Bachelor of Music with a Major in Vocal Music Education — any vocal Performance Ensemble with at least six quarters of MUA 0284, 0285 or 0289;
 - e. Bachelor of Music with a Major in Music Therapy — any Performance Ensemble;
 - f. Bachelor of Music with a Major in Performance —
 - (1) Organ — any Performance Ensemble
 - (2) Piano — any Performance Ensemble
 - (3) Voice — any vocal Performance Ensemble with a minimum of six quarters of either MUA 0285 or 0289;
 - (4) Winds or percussion — six quarters of MUA 0280 and six quarters of MUA 0281
 - (5) Strings — MUA 0281
 - (6) Classic Guitar — any Performance Ensemble
 - (7) Free-bass Accordion — any Performance Ensemble;
 - g. Bachelor of Music with a Major in Church Music — any vocal Performance Ensemble with a minimum of six quarters of MUA 0284, 0285 or 0289;
 - h. Bachelor of Music with a Major in Theory — any Performance Ensemble.

Chamber music ensemble requirements for Bachelor of Music with a major in Performance or Church Music

(Chamber music ensemble is defined as any section of MUA 0288.)

1. Bachelor of Music with a Major in Performance —
 - a. Organ — one quarter;
 - b. Piano — six quarters;
 - c. Winds, percussion, strings — six quarters;
 - d. Classic Guitar — six quarters;
 - e. Free-bass Accordion — no requirement.
2. Bachelor of Music with a Major in Church Music — one quarter.

Additional Specific Curriculum Requirements of the Department

BACHELOR OF ARTS

- a. MUT 0210;
- b. MUH 0335;
- c. Foreign Language group requirement;
- d. Necessary elections from courses, other than music, to complete graduation requirements.

BACHELOR OF MUSIC WITH A MAJOR IN CHURCH MUSIC

- a. MUT 0204, 0205, 0210, 0211, 0316, 0317;
- b. MUH 0230, 0231, 0535
- c. Three quarters of MUA 0573;
- d. MUA 0267;
- e. Six quarters of MUP 0121 or equivalent by examination;
- f. Thirty-six credits of MUP 0220;
- g. Junior and senior recitals.



BACHELOR OF MUSIC WITH A MAJOR IN COMPOSITION OR THEORY

- a. MUT 0204, 0205, 0210, 0211, 0212, 0300, 0301, 0310, 0311, 0312, 0316, 0317, 0403, 0504, 0507, 0508, and
(1) For Composition majors — MUT 0410, 0411, 0412
(2) For Theory majors — MUT 0402, 0601;
- b. MUH 0335 or 0336 or 0436 recommended;
- c. Senior projects —
(1) For Composition majors — presentation of an original composition approved by the Director of the Theory Division
(2) For Theory majors — presentation of a lecture coordinated by the Director of the Music History Division;
- d. MUA 0173, 0174, 0175, 0177, 0267, 0268.

BACHELOR OF MUSIC WITH A MAJOR IN INSTRUMENTAL MUSIC EDUCATION

- a. Twelve quarters selected from MUP 0223, 0224, 0225 or 0226 at one hour credit per quarter;
- b. Two quarters of MUA 0173; three quarters of MUA 0174; two quarters of MUA 0175; MUA 0176 and MUA 0177;
- c. MUA 0267, 0268;
- d. MED 0454, 0455, 0456;
- e. MUT 0507 (for winds and percussion majors);
- f. MUT 0300, 0301 (for string majors).

BACHELOR OF MUSIC WITH A MAJOR IN VOCAL MUSIC EDUCATION

- a. MUP 0221 — six quarters at one hour credit per quarter;
- b. MUP 0222 — six quarters at one hour credit per quarter (Note: MUA 0172, 0272, 0372 may be substituted for the first three quarters of the above requirement);
- c. Six additional quarters of MUP 0221 and/or 0222 at one credit per quarter, as directed by the adviser;
- d. MUT 0314, 0315 — taken in the sophomore year;
- e. MUA 0267;
- f. MED 0451, 0452, 0453, 0555;
- g. Six credits selected from MUA 0173, 0174, 0175, 0176, 0177, or 0178.

BACHELOR OF MUSIC WITH A MAJOR IN MUSIC THERAPY

- a. MUA 0173, 0174, 0175, 0177;
- b. Proficiency on one of the following instruments by examination: guitar or accordion;
- c. MUA 0172, 0272, 0372;
- d. MUA 0569, 0571, 0572 — taken in the senior year;
- e. PSY 0317, 0318, 0330, 0335, 0360, 0430;
- f. SPH 0200, 0210.

Note: This degree requires an internship by direction of the department chairman for completion of the prerequisites for certification as a Registered Musical Therapist.

BACHELOR OF MUSIC WITH A MAJOR IN PERFORMANCE

- a. MUT 0210, 0316, 0317;
- b. MUH 0535;
- c. Thirty-six credits of MUP 0220-29 in the principal instrument (forty-five credits maximum);
- d. Three credits of secondary instrument taken in the MUP 0120-29 series (violinists elect viola or equivalent by examination);
- e. Performance on a student recital in the sophomore year; a half recital in the junior year; and a full recital in the senior year.
- f. Specific additional requirements as follows:
 - (1) Piano — MUT 0204, 0205, 0211; MUA 0575, 0576, 0577
 - (2) Organ — MUT 0204, 0205, 0211; three quarters of MUA 0573; MUA 0570
 - (3) Strings, winds or percussion — MUT 0300
 - (4) Voice — MUT 0314, 0315, 0316, 0508; proficiency in two foreign romance languages other than the native tongue at the discretion of the adviser.

BACHELOR OF MUSIC WITH A COMBINED MAJOR IN VOCAL MUSIC EDUCATION

— with *Vocal Performance, or Piano Performance, or Organ Performance*

- a. Performance major approved by the adviser;
- b. All courses required for the Vocal Music Education curriculum except that the principal instrument (i.e. Voice, Piano, or Organ) must be elected for three credits per quarter for twelve quarters, for a total of thirty-six credits (forty-five credits maximum);
- c. MUH 0535;
- d. MUT 0210, 0316, 0317;
- e. Required recitals;
- f. Specific requirements:
 - (1) Voice — MUT 0508; proficiency in two foreign languages (other than the native language, as determined and approved by the adviser);
 - (2) Piano — MUT 0204, 0205, 0211; MUA 0288 — six quarters; MUA 0575, 0576, 0577;
 - (3) Organ — MUT 0204, 0205, 0211; MUA 0288, 0570; MUA 0573 — three quarters.

BACHELOR OF MUSIC WITH A COMBINED MAJOR IN INSTRUMENTAL MUSIC EDUCATION

— with *Orchestral Instruments*

- a. Instrumental major approved by the adviser;
- b. All courses required for the Instrumental Music Education Curriculum except that the principal instrument (see "a" above) must be elected for three credits per quarter for twelve quarters, for a total of thirty-six credits (forty-five credits maximum);
- c. MUA 0288 — six quarters;
- d. Wind and percussion majors must elect MUA 0281 for six quarters unless waived by the adviser;
- e. MUT 0210, 0316, 0317;
- f. MUH 0535;
- g. Secondary instrument (MUP series 021X) — three credits;
- h. Required recitals.

GRADUATE MAJOR

Entrance Requirements — All applicants for graduate degrees are required to pass the departmental comprehensive theory and history examination. Furthermore, all students desiring to pursue any of the Master of Music curricula must be certified for entrance into the program through further examination and/or audition by the divisional director of the major area of concentration or his or her designees.

Candidacy must be established by the time eighteen credits have been earned toward the master's degree. Applicants become degree candidates only upon recommendation of the chairman of the department or the Committee on Graduate Studies.

Plan A — Thirty-six credits in course work plus a thesis, or composition (M.M. in composition only), or recital preparation (M.M. in performance only).

Plan B — Forty-four credits in course work plus an essay.

Plan A or B is open to candidates for the degree of Master of Music with a major in Music Education. Plan A only is open to all other candidates.

Oral Examination — An oral examination is required of all students electing Plan A.

MASTER OF ARTS

Admission — The student must present a minimum of sixty acceptable undergraduate credits in music, distributed according to the requirements for the Bachelor of Arts degree with a major in music or its equivalent. Undergraduate credits transferred from another institution must be evaluated by the departmental chairman.

	<i>credits</i>
Theory and Music History (minimum of eight credits in each, other than MUH 0530 and 0850)	20
MUH 0530 and 0850	8
Music electives or cognates	8
MUH 0899	12
	48

MASTER OF MUSIC

MAJOR IN COMPOSITION

Prerequisite — Bachelor of Music with a major in theory or composition. Candidates for this degree must have had prior training in composition and must be prepared to present scores for evidence of proper preparation.

	<i>credits</i>
MUT 0505, 0601, 0700, 0708, 0710	24
Music History (other than MUH 0530)	8
MUH 0530	4
MUH 0899 — an original composition in one of the larger forms of a minimum of twelve minutes duration; approved by the adviser; separate from the work done in MUT 0710	12
	48

MAJOR IN THEORY

Prerequisite — Bachelor of Music with a major in theory or composition; acceptance into the program by the divisional director for Theory.

	<i>credits</i>
MUT 0505, 0601, 0700, 0702, 0703, 0704, 0707, 0708	20
Music History (other than MUH 0530 and 0850)	8
MUH 0530 and 0850	8
MUH 0899	12
	48

MAJOR IN PERFORMANCE

Prerequisite — Bachelor of Music with a major in performance; acceptance into the program by the divisional director for the performance area.

	<i>credits</i>
MUP — 0700 level — Principal Instrument (max. 18 credits)	12
MUP — 0600 level — Secondary Instrument	4
MUA 0788	2
Music Theory	8
Music History (other than MUH 0530)	8
MUH 0530	4
Music Electives	10
	48

MAJOR IN MUSIC EDUCATION

Prerequisite — Bachelor of Arts or Science or Music in Music Education; acceptance into the program by the divisional director for Music Education.

	<i>credits</i>
Music Education — including MED 0757, 0799	27
MUP — 0700 or 0600 level	3
Music History	8
Electives	10
	48

COURSES OF INSTRUCTION¹

Theory (MUT)

0110. Elementary Music Theory, Cr. 2.

No degree credit for music majors. Music terminology and standard notation, including intervals and triads.

0114. Theory I, Cr. 2.

Prereq: MUT 0110 or satisfactory equiv. by examination; coreq: MUT 0115. Basic acoustics; scales; intervals, rhythm; triads; tonality; simple counterpoint. Correlated analysis and creative assignments.

0115. Ear Training I, Cr. 1.

Prereq: MUT 0110 or satisfactory equiv. by examination; coreq: MUT 0114. Simple melodic and rhythmic dictation; sight singing; interval and triad-type recognition.

0116. Theory II, Cr. 2.

Prereq: MUT 0114, 0115; coreq: MUT 0117. Primary and secondary triads in all positions; principles of formal organization; binary design; non-harmonic tones; cadences; chord movement; melodic harmonization; correlated analysis and creative assignments.

0117. Ear Training II, Cr. 1.

Prereq: MUT 0114, 0115; coreq: MUT 0116. Sight singing and dictation; simple melodic and harmonic dictation; pitch discrimination.

0118. Theory III, Cr. 2.

Prereq: MUT 0116, 0117; coreq: MUT 0119. Diatonic seventh chords; modulation to closely related keys; introduction to orchestration; correlated analysis and creative assignment.

0119. Ear Training III, Cr. 1.

Prereq: MUT 0116, 0117; coreq: MUT 0118. Sight singing and intermediate dictation including triads in all positions; pitch discrimination and correlated critical listening.

0204. Keyboard Harmony I, Cr. 1.

Prereq: junior standing. Harmonic progressions applied at keyboard; figured bass; harmonization of soprano or bass; modulation; transposition and score reading.

0205. Keyboard Harmony II, Cr. 1.

Prereq: MUT 0204; junior standing. Continuation of Music 0204. Advanced keyboard harmony.

0210. Eighteenth Century Counterpoint I, Cr. 2.

Prereq: junior standing. Contrapuntal technique of J. S. Bach and his contemporaries. Two-voice structure only.

0211. Eighteenth Century Counterpoint II, Cr. 2.

Prereq: MUT 0210. Continuation of Music 0210. Three- and four-voice structures.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

0212. Jazz Theory and Arranging. Cr. 2.

A survey of the field of jazz and popular music from a theoretical aspect, with emphasis upon stylistic periods, techniques of improvisation.

0214. Theory IV. Cr. 2.

Prereq: MUT 0118, 0119; coreq: MUT 0215. Advanced modulation; altered chords; modulation to keys not closely related; introduction to eighteenth-century contrapuntal techniques; Baroque sonata; ternary design; correlated analysis and creative assignments.

0215. Ear Training IV. (0,3), Cr. 1.

Prereq: MUT 0118, 0119; coreq: MUT 0214. Continuation of MUT 0119 plus two-part melodic dictation and additional emphasis upon sight singing and pitch discrimination; correlated critical listening.

0216. Theory V. Cr. 2.

Prereq: MUT 0214, 0215; coreq: MUT 0217. Functional and non-functional chromaticism; chords of the 9th, 11th, 13th; parallelism; added-note chords; sonata-allegro design; correlated analysis and creative assignments.

0217. Ear Training V. Cr. 1.

Prereq: MUT 0214, 0215; coreq: MUT 0216. Sight singing and dictation including more advanced work; harmonic dictation including all non-harmonic tones; correlated critical listening.

0218. Theory VI. Cr. 2.

Prereq: MUT 0216, 0217; coreq: MUT 0219. Twentieth-century music; mainstream compositional devices of melody, harmony, and rhythm; serial music; electronic music; computer music; contemporary notation; aleatoric music.

0219. Ear Training VI. Cr. 1 (Max. 4).

Prereq: MUT 0216, 0217; coreq: MUT 0218. Continuation of MUT 0217; harmonic dictation including all seventh chords, correlated critical listening.

0300. Orchestration I. Cr. 2.

Prereq: junior standing. Practical course in arranging music for orchestra, including study of transposition, arrangements from a piano score, general treatment of range, relationship, tone qualities, balance of orchestral instruments.

0301. Orchestration II. Cr. 2.

Prereq: MUT 0300. Opportunity to arrange complicated piano scores for symphony orchestra. Original compositions may be arranged. University Symphony Orchestra available for laboratory work.

0310. Composition I. Cr. 2.

Prereq: junior standing. Introduction to creative writing. Creative properties of melodic line in relation to rhythm, tonality, cadence and form; aesthetic considerations. Writing for unaccompanied instruments.

0311. Composition II. Cr. 2.

Prereq: MUT 0310. Continuation of Music 0310. Emphasis on creative aspects of rhythm, cadence, tonal polarity, concepts of consonance and dissonance within framework of two-voice texture.

0312. Composition III. Cr. 2.

Prereq: MUT 0311. Continuation of Music 0311. Emphasis on creative aspects of larger harmonic textures in relation to melodic, rhythmic, other structural elements. Aesthetic and stylistic considerations; piano pieces, small ensemble writing.

0314. Solfeggio I. Cr. 2.

Prereq: MUT 0115; sophomore standing. Unison, two and three-part singing, including diatonic melodies, basic rhythmic patterns and simple modulations.

0315. Solfeggio II. Cr. 2.

Prereq: MUT 0314. Continuation of Music 0314; chromatic embellishments, modal idioms, and complex structures. Additional material from public school song books, K-8.

0316. Advanced Sight Singing. Cr. 2.

Prereq: MUT 0219. Survey of melodic material from elementary levels to advanced contexts sung with and without tone syllables.

0317. Advanced Melodic and Harmonic Dictation. Cr. 2.

Prereq: MUT 0219. Continuation of MUT 0219 including all altered chords and melodic dictation with modulations to keys not closely related.

0402. Renaissance Counterpoint. Cr. 2.

Prereq: junior standing. Contrapuntal practice of the fifteenth and sixteenth century European composers, excluding Palestrina.

0403. Palestrina Counterpoint. Cr. 2.

Prereq: junior standing. Contrapuntal technique of Giovanni Pierluigi da Palestrina.

0405. Analytic Technique I. Cr. 2.

Prereq: junior standing. Structural analysis of varied musical materials historically organized.

0406. Analytic Technique II. Cr. 2.

Prereq: MUT 0405. Continuation of Music 0405.

0410. Composition IV. Cr. 2.

Prereq: MUT 0312 and 0406. Creative writing in twentieth century idioms. Aesthetic, stylistic, and formal problems in composition employing contemporary techniques.

0411. Composition V. Cr. 2.

Prereq: MUT 0410. Continuation of Music 0410.

0412. Composition VI. Cr. 2.

Prereq: MUT 0411. Continuation of Music 0411.

0504. History of Music Theory. Cr. 4.

Prereq: junior standing. Comprehensive survey from ancient Greeks to present.

0505. Advanced Orchestration. Cr. 4.

Prereq: MUT 0301. Arranging and scoring for orchestra in all forms of ensemble structure.

0507. Band Arranging. Cr. 4.

Prereq: junior standing; open only to music majors.

0508. Choral Arranging. Cr. 3-4.

Prereq: junior standing; open only to music majors.

0601. Eighteenth Century Fugue. Cr. 2.

Prereq: MUT 0211. Fugal style of the eighteenth century with particular emphasis on the *Well-Tempered Clavier* and the *Art of the Fugue* by J. S. Bach.

0700. Advanced Contrapuntal Techniques. Cr. 2.

Prereq: MUT 0211. Complex eighteenth century contrapuntal techniques including invertible counterpoint.

0702. Seminar in Schenker. Cr. 2.

Prereq: MUT 0406 or equiv. Schenker's theory of tonal music and method of graphic notation for analysis.

0703. Seminar in Schoenberg. Cr. 2.

Prereq: MUT 0406 or equiv. Schoenberg's theories, application to his music and that of other composers.

0704. Seminar in Hindemith. Cr. 2.

Prereq: MUT 0406 or equiv. Hindemith's theories; a deeper understanding of the Hindemith style through analysis.

0707. Advanced Analytic Techniques. Cr. 2.

Prereq: MUT 0406 or equiv. Various analytic techniques with stress on the harmonic contrapuntal styles of the late nineteenth and twentieth centuries.

0708. Directed Study in Theory. Cr. 2-8.

Credit assigned by adviser and instructor. Prereq: MUT 0407 and consent of graduate officer. Individually directed study of theoretical musicology.

0710. Graduate Composition. Cr. 4 (Max. 12).

Prereq: MUT 0412 or consent of instructor. Advanced creative work in all of the idioms of twentieth century musical composition.

History and Literature (MUH)

0130. Music Literature: Keyboard and Song. Cr. 4.

Not open to music majors. Folk songs, art songs, all keyboard literature (harpsichord, piano, organ).

0131. Music Literature: Symphonic and Chamber. Cr. 4.

Not open to music majors. Symphonic literature, concerto, chamber music.

0132. Music Literature: Opera and Oratorio. Cr. 4.

Not open to music majors. Opera, mass, oratorio.

0137. History of Musical Thought I. Cr. 4.

Not open to music majors. Development of musical style in Europe from the Greeks through the Baroque era; Bach and Handel.

0138. History of Musical Thought II. Cr. 4.

Not open to music majors. Development of musical style in Europe from the Classic era to the present.

0230. Church Music and Materials I. Cr. 2.

Prereq: MUA 0267 and major in organ or church music. Practical application of material used in churches of various faiths. For choir directors and organists.

0231. Church Music and Materials II. Cr. 2.

Prereq: MUH 0230. Continuation of Music 0230.

0331. Music History I. Cr. 4.

Prereq: sophomore standing and MUT 0118 or equiv. For music majors; others by consent of chairman. Primitive music through the Renaissance.

0332. Music History II. Cr. 4.

Prereq: sophomore standing and MUT 0118 or equiv. For music majors; others by consent of chairman. Baroque through Pre-classical.

0333. Music History III. Cr. 4.

Prereq: sophomore standing and MUH 0332, MUT 0118 or equiv. For music majors; others by consent of chairman. Classic era and Romanticism.

0334. Music History IV. Cr. 4.

Prereq: sophomore standing and MUH 0333, MUT 0118 or equiv. For music majors; others by consent of chairman. Late Romantic to present time.

0335. Contemporary Music History. Cr. 4.

Prereq: sophomore standing; open to all students. A survey of the history of music in the twentieth century including impressionism, atonality, main-stream twentieth century style, serialism, electronic music, computer music, and aleatoric music.

0336. History of Jazz to 1950. Cr. 4.

Prereq: sophomore standing. Development of jazz from its inception to 1950.

0436. History of Jazz: 1950 to the Present. Cr. 4.

Continuation of Music 0336.

0530. Introduction to Musicology. Cr. 4.

Prereq: four courses in music history. Various fields of musicology with investigation of research resources and methods. This course or its equivalent is a prerequisite to all graduate work.

0535. Studies in Performance Literature and Pedagogy. Cr. 4.

Prereq: music major in an undergraduate performance curriculum. Various fields from the Baroque period to the present.

0731. Studies in Medieval Music. Cr. 4.

For music majors; others by consent of instructor. Early European music from origins of Roman Chant through the *Ars Nova*.

0732. Studies in Renaissance Music. Cr. 4.

For music majors; others by consent of instructor. Fifteenth and sixteenth centuries, from Burgundian School through Palestrina.

0733. Studies in Baroque Music. Cr. 4.

For music majors; others by consent of instructor. Bach and his contemporaries. Special reports; research projects.

0734. Studies in Classical Music. Cr. 4.

For music majors; others by consent of instructor. From 1750 to 1825. Special reports on music of Beethoven and his contemporaries.

0735. Studies in Romantic Music. Cr. 4.

For music majors; others by consent of instructor. Nineteenth century. Special reports and research projects.

0736. Studies in Twentieth Century Music. Cr. 4.

For music majors; others by consent of instructor. Special reports, and research projects.

0745. Studies in Performance Styles. Cr. 4-12.

Prereq: written consent of chairman. Individually directed study of performance styles.

0750. Directed Study in Music History. Cr. 2-4.

Prereq: consent of chairman and graduate officer. Problems in music history; areas of musicological investigation.

0850. Directed Study. (2,2). Cr. 4.

Prereq: MUH 0530 and consent of graduate officer. Thesis writing for master's degree. To determine by research whether the subject matter of the thesis topic is acceptable for fulfillment of the thesis requirement.

0899. Master's Thesis Direction. Cr. 2-12 (12 required).

Prereq: MUH 0850 or 12 credits in MUT 0710, and consent of chairman and adviser.

Applied Music (MUP)

PRIVATE INSTRUCTION

The College offers private instruction in voice and specific musical instruments. These courses are open only to music majors and require special fee cards for registration. Undergraduate students must elect eight credits, and graduate students five credits, to be eligible to elect these courses. See the *Schedule of Classes* for details regarding these special fees.

These courses offer either one or three credits. They are open for three credits only to performance majors in the Bachelor of Music curricula or the Master of Music curricula. Five hours of instruction over ten weeks are required for one credit; ten hours of instruction over ten weeks are required for three credits. Jury examinations are given twice a year for all students electing these courses for three credits, and once a year for students electing the 0220 series for one credit.

The following courses are for students who wish to study voice or an instrument in a secondary capacity. They may be elected as many times as necessary to obtain the required credits in a given curriculum. The courses are open only to performance majors or music education majors.

- 0120. Organ. Cr. 1.
- 0121. Piano. Cr. 1.
- 0122. Voice. Cr. 1.
- 0123. Stringed Instruments. Cr. 1.
- 0124. Woodwind Instruments. Cr. 1.
- 0125. Brasswind Instruments. Cr. 1.
- 0126. Percussion Instruments. Cr. 1.
- 0127. Harp. Cr. 1.
- 0128. Classic Guitar. Cr. 1.
- 0129. Free Bass Accordion. Cr. 1.

The following courses are for students who wish to study voice or an instrument in a principal capacity. Maximum election is limited to fifteen quarters. They are open only to music majors, and are open for three credits only to performance majors. A prerequisite for these courses is the election of any one of the following courses: MUA 0280, 0281, 0283, 0284, 0285, 0287, 0289, or 0563.

- 0220. Organ. Cr. 1 or 3.
- 0221. Piano. Cr. 1 or 3.
- 0222. Voice. Cr. 1 or 3.
- 0223. Stringed Instruments. Cr. 1 or 3.
- 0224. Woodwind Instruments. Cr. 1 or 3.
- 0225. Brasswind Instruments. Cr. 1 or 3.
- 0226. Percussion Instruments. Cr. 1 or 3.
- 0227. Harp. Cr. 1 or 3.
- 0228. Classic Guitar. Cr. 1 or 3.
- 0229. Free Bass Accordion. Cr. 1 or 3.

The following courses are only for graduate students who wish to study voice or an instrument in a secondary capacity. They may be elected as many times as is necessary to obtain the required credit in a given curriculum. They are open only to graduate music majors in performance or music education.

- 0620. Organ. Cr. 1.
- 0621. Piano. Cr. 1.
- 0622. Voice. Cr. 1.
- 0623. Stringed Instruments. Cr. 1.
- 0624. Woodwind Instruments. Cr. 1.
- 0625. Brasswind Instruments. Cr. 1.
- 0626. Percussion Instruments. Cr. 1.
- 0627. Harp. Cr. 1.
- 0628. Classic Guitar. Cr. 1.
- 0629. Free Bass Accordion. Cr. 1.

The following courses are for graduate students who wish to study voice or an instrument in a principal capacity. They may be elected as many times as necessary to obtain the required credit in a given curriculum. They are open only to graduate music majors, and are open for three credits only to performance majors. Maximum election is limited to six quarters.

- 0720. Organ. Cr. 1 or 3.
- 0721. Piano. Cr. 1 or 3.
- 0722. Voice. Cr. 1 or 3.
- 0723. Stringed Instruments. Cr. 1 or 3.
- 0724. Woodwind Instruments. Cr. 1 or 3.
- 0725. Brasswind Instruments. Cr. 1 or 3.
- 0726. Percussion Instruments. Cr. 1 or 3.
- 0727. Harp. Cr. 1 or 3.
- 0728. Classic Guitar. Cr. 1 or 3.
- 0729. Free Bass Accordion. Cr. 1 or 3.

Applied Music (MUA)

CLASSROOM INSTRUCTION

The college offers classroom instruction in voice and specific musical instruments to students who have such courses required in their curricula. All classroom instruction courses in applied music meet at regular times throughout the week in an assigned room. Consult the *Schedule of Classes* for details.

Harpsichord

- 0573. Harpsichord Class. Cr. 2 (Max. 6).
- Prereq: written consent of instructor. Harpsichord techniques.

Organ

- 0570. Organ Guild Examination Class. (1,1). Cr. 2.
- Prereq: major in organ or church music at the senior level. Preparation for the AAGO examination. Intensive drill in the various areas covered by the examination for the associateship in the American Guild of Organists.

Piano

- 0171. Piano Class I. Cr. 2.
- Not open to music majors. Rudiments: scales, study of simple compositions.
- 0179. Piano Proficiency: Level I. Cr. 2.
- Open only to music majors. Repertoire, scales, sight reading, har-

monization, simple transpositions. Certification of undergraduate core piano proficiency requirement on satisfactory completion of Music 0479.

0271. Piano Class II. Cr. 2.

Prereq: MUA 0171 or equiv. Not open to music majors. Continuation of Music 0171.

0279. Piano Proficiency: Level II. Cr. 2.

Prereq: MUA 0179 or equiv. Open only to music majors. Continuation of Music 0179; blocked chords.

0371. Piano Class III. Cr. 2.

Prereq: MUA 0271 or equiv. Not open to music majors. Continuation of Music 0271.

0379. Piano Proficiency: Level III. Cr. 2.

Prereq: MUA 0279 or equiv. Open only to music majors. Continuation of Music 0279.

0471. Piano Class IV. Cr. 2 (Max. 6).

Prereq: MUA 0371 or equiv. Not open to music majors. Continuation of Music 0371.

0479. Piano Proficiency: Level IV. Cr. 2.

Prereq: MUA 0379 or equiv. Open only to music majors. Continuation of Music 0379. Satisfactory completion of Music 0479 leads to the certification of the undergraduate core piano proficiency requirement.

0575. Piano Pedagogy. Cr. 4.

Prereq: junior standing; consent of instructor or chairman. Open only to performance majors in piano or written consent of chairman. Does not count toward teacher certification. Piano pedagogy from various viewpoints to prepare students in piano performance curriculum for service as private or classroom piano instructors.

0576. Supervised Teaching for Piano Laboratory Classes. Cr. 2 (Max. 6).

Prereq: written consent of instructor or chairman. Supplement to the present curriculum in piano performance; supervised teaching experience for students pursuing that curriculum.

0577. Techniques of Piano Accompaniment. Cr. 2.

Prereq: junior standing; consent of instructor or chairman. Gives the advanced piano student various techniques of accompaniment among various types of literature.

Voice

0172. Voice Class I. Cr. 2.

Open to all students. Fundamentals in voice training. Correct breathing; tone placement; articulation vocalises.

0272. Voice Class II. Cr. 2.

Prereq: MUA 0172 or equiv. Voice building and repertoire; simple art songs.

0372. Voice Class III. Cr. 2.

Prereq: MUA 0272 or equiv. Voice building and repertoire; romantic to contemporary periods.

0472. Voice Class IV. Cr. 2 (Max. 6).

Prereq: MUA 0372 or equiv. Interpretative style of art song, oratorio, and opera.

Guitar

0178. Classic Guitar Class I. Cr. 2.

Open only to beginning students. Performance, basic posture, and tone production.

0278. Classic Guitar Class II. Cr. 2.

Prereq: MUA 0178 or equiv. Continuation of MUA 0178.

0378. Classic Guitar Class III. Cr. 2 (Max. 6).

Prereq: MUA 0278 or consent of instructor. Continuation of MUA 0278.

CLASSROOM COURSES AND ENSEMBLES

Instrumental Classes

0173. String Class. Cr. 2 (Max. 6).

Open only to music majors. Techniques and fundamental problems in the playing and teaching of stringed instruments.

0174. Woodwind Class. Cr. 2 (Max. 6).

Open only to music majors. Techniques and fundamental problems in the playing and teaching of woodwind instruments.

0175. Brasswind Class. Cr. 2 (Max. 6).

Open only to music majors. Techniques and fundamental problems in the playing and teaching of brasswind instruments.

0176. Percussion Class. Cr. 2.

Open only to music majors. Techniques and fundamental problems in the playing and teaching of percussion instruments.

0177. Basic Snare Drum Techniques. Cr. 2.

Open only to music majors. Techniques and fundamental problems in playing and teaching the snare drum.

Performance Ensembles

0280. University Band. Cr. 1.

Prereq: consent of director.

0281. University Symphony Orchestra. Cr. 1.

Prereq: consent of director.

0283. Men's Glee Club. Cr. 1.

Prereq: consent of director.

0284. University Choruses. Cr. 1.

Prereq: consent of director.

0285. Chamber Singers. Cr. 1.

Prereq: consent of director.

0287. Women's Chorale. Cr. 1.

Prereq: consent of director.

0288. Chamber Music and Special Ensembles. Cr. 1.

All forms.

0289. Symphonic Choir. Cr. 1.

Prereq: consent of director. High quality mixed choir; performance of choral works with the University Symphony and the Detroit Symphony Orchestra.

0563. Opera Workshop (SPH 0563). Cr. 2 (Max. 12).

Undergrad. credit only. Prereq: consent of instructor. Re-election by music majors only with consent of adviser. Performing aspects of light and grand operas as they pertain to singers. Scenes, acts, or entire operas performed each quarter.

0780. University Band. Cr. 1.

Prereq: consent of director.

0781. University Symphony Orchestra. Cr. 1.

Prereq: consent of director.

0783. Men's Glee Club. Cr. 1.

Prereq: consent of director.

0785. Chamber Singers. Cr. 1.
Prereq: consent of director.

0789. Symphonic Choir. Cr. 1.
Prereq: consent of director.

Other Courses

0267. Conducting Techniques I. Cr. 4.
Prereq: MUT 0218, 0219 or equiv. Rudiments of conducting; special attention to baton technics.

0268. Conducting Techniques II. Cr. 4.
Prereq: MUA 0267. Continuation of Music 0267. Score reading and rehearsal technics.

0569. Influence of Music on Behavior. Cr. 4.
Prereq: PSY 0198, 0317, 0318. Physiological and psychological effects of music; relation of music to health; experimental studies; related philosophical and psychological theory.

0571. Music Therapy Techniques I. Cr. 4.
Prereq: MUA 0569. Procedures in music therapy; investigation of the rise of music as a tool in treatment of mentally ill and physically handicapped; introduction to hospital organization.

0572. Music Therapy Techniques II. Cr. 4.
Prereq: MUA 0571. Continuation of Music 0571.

Music Education (MED)

0356. Directed Study. Cr. 2-9 (Max. 9).
Prereq: consent of adviser.

0451. Vocal Music in the Schools I. Cr. 4.
Prereq: MUT 0309. Orientation to music teaching; methods and materials in early elementary grades.

0452. Vocal Music in the Schools II. Cr. 4.
Prereq: MED 0451. Continuation of Music 0451. Emphasis on upper elementary grades.

0453. Vocal Music in the Schools III. Cr. 4.
Prereq: MED 0452. Continuation of Music 0452; organization of methods and materials in junior and senior high schools.

0454. Instrumental Music in the Schools I. Cr. 4.
Prereq: MUA 0173, 0174, 0175, 0176. Teaching techniques, materials and organization of instrumental music in elementary schools.

0455. Instrumental Music in the Schools II. Cr. 4.
Prereq: MED 0454. Teaching techniques, materials and organization of instrumental music in junior and senior high schools.

0456. Instrumental Music in the Schools III. Cr. 4.
Prereq: MED 0455. Special problems in the teaching of instrumental music.

0551. Music Literature for Elementary Classroom Teachers. Cr. 4.

0553. Music Education for General Elementary School Teachers (TED 5203). Cr. 4.
No graduate credit for music education majors. Foundations and basic methods in music for the classroom teacher.

0555. Choral Technics in Secondary Schools. Cr. 3-4.

0556. Secondary School Vocal Music Workshop. Cr. 3-4 (Max. 8).
Group participation in the study of class materials and teaching procedures relating to vocal music in the schools.

0650. Directed Study in Music Education. Cr. 1-12 (Max. 12).
Prereq: consent of adviser, supervising instructor, and graduate officer. Supervised professional study in field settings.

0652. Elementary School Music Workshop. Cr. 3-4.
Study of music materials in relation to other areas of instruction.

0653. Conducting and Operating the School Band. Cr. 3-4 (Max. 8).
Prereq: consent of instructor.

0654. Instrumental Music Workshop. Cr. 3-4 (Max. 8).
Current problems, procedures and materials pertaining to development of the instrumental music program in the schools.

0753. Music in Secondary Schools. Cr. 3-4.
Open to all graduate students. Principles relating to the secondary school music curriculum.

0754. Organization and Administration of Music in the Schools. Cr. 3-4.
Open to all graduate students.

0755. General Music in the Schools. Cr. 3-4.
Materials and aural technics related to listening experiences.

0756. Contemporary Trends in Music Education. Cr. 3-4.
Open to all graduate students. Role of music in the school. Philosophy, trends and issues in music education on all grade levels.

0757. Introductory Master's Seminar. Cr. 3-4.
Prereq: consent of adviser or instructor.

0758. Advanced Conducting Techniques. Cr. 3-4.
Prereq: MUA 0268 or equiv. Structural analysis relating to rehearsal technics and the interpretation of performance materials. Review and clarification of manual baton technics and styles.

0799. Master's Essay Direction. Cr. 3-4.
Prereq: consent of chairman and adviser.

0851. Foundations of Music Education I. Cr. 3-4.
Historical and philosophical foundations of music education; important trends, innovations and leaders in the development of music in United States' schools; and the influence of educational philosophers and aesthetic theories.

0852. Foundations of Music Education II. Cr. 3-4.
Consideration of the psychological foundations of music education; the application of learning theories to music teaching and evaluation of school music programs.

0853. Instructional Technology in Music Education. Cr. 3-4.
Principles and techniques for utilizing media (hardware and software) and systematic instruction in the school music program.

NEAR EASTERN AND ASIAN STUDIES

Office: 437 Manoogian Hall

Chairman: Jacob Lassner

PROFESSOR

Jacob Lassner

ASSOCIATE PROFESSOR

Aleya A. Rouchdy

ASSISTANT PROFESSORS

Eleanor H. Crown, Tikvah S. Frymer, Ivan Starr

ADJUNCT PROFESSOR

Max Kapustin

DEGREE PROGRAMS

Bachelor of Arts — with a major in Hebrew

Bachelor of Arts — with a major in Near Eastern languages

Bachelor of Arts — with a major in Near Eastern studies

The department aims to acquaint the student with languages and civilizations of the Near East with an emphasis on the classical traditions. In addition to reading texts in the original language, the student may elect courses from a wide range of offerings for which no previous language study is required. A student who wishes to major in the department should plan his program with the departmental adviser as soon as possible after entering the University. Each program is arranged individually to combine the most varied advantages consistent with the student's interests and purposes.

BACHELOR OF ARTS

With a Major in Hebrew

Major Requirements — A major in Hebrew consists of thirty-six credits beyond Hebrew 0103. In addition, the student is required to take sixteen credits in Hebrew culture including the Biblical and post-Biblical periods.

With a Major in Near Eastern Languages

Major Requirements — A major in Near Eastern languages consists of: (a) twenty-four credits beyond first year proficiency in a Near Eastern language (Arabic, Hebrew) and first year proficiency in a second language (Akkadian, Arabic, Aramaic, Hebrew) or (b) twelve credits beyond first year

proficiency in two Near Eastern languages (Arabic, Hebrew). In addition, the student is required to take sixteen credits in elective courses in Ancient Near East, Hebrew, or Islamic culture.

With a Major in Near Eastern Studies

Major Requirements — A major in Near Eastern Studies consists of twelve credits beyond the first year proficiency in a foreign language (Arabic, Hebrew). In addition, the student is required to take forty credits in elective courses including no less than eight credits in each of the following: Ancient Near Eastern culture, Hebrew culture, Islamic culture.

Recommended Cognate Courses — The department recommends the following: Anthropology 0529, 0530, 0533; English 0234; Geography 0541; History 0535; Philosophy 0560.

MASTER OF ARTS

With a Major in Near Eastern Languages

Plan A — Thirty-six credits in course work plus a thesis.

Plan B — Forty-five credits in course work plus an essay.

Specialization in Hebrew

Admission — The applicant must have an adequate knowledge of at least one Semitic language and some knowledge of the culture of the Near East.

Candidacy must be established by the time eighteen credits have been earned.

Degree Requirements — A student specializing in Hebrew is expected to demonstrate ability in the use of Hebrew sources and some proficiency in either Aramaic or Arabic. In addition to the Hebrew courses, the student will be required to take either eight credits in Aramaic or twelve credits in Arabic. Under special circumstances, the student may be advised to elect eight credits in cognate courses from the disciplines of history, philosophy, anthropology, sociology, and political science. He is expected to write a thesis or attend a seminar where he must show his ability in using sources and in doing original research. He must also show his proficiency in a modern language. A final oral and written examination will be required to test the ability of the student in the language and culture of his area of specialization. The student's program of study must have approval of the major adviser and must include Hebrew 0782.

Specialization in Arabic

Admission — The applicant must have adequate knowledge of at least one Semitic language and some knowledge of the culture of the Near East.

Candidacy must be established by the time eighteen credits have been earned.

Degree Requirements — A student specializing in Arabic is expected to demonstrate ability in the use of Arabic sources

and some proficiency in either Aramaic or Hebrew. In addition to the Arabic courses, the student will be required to take either eight credits in Aramaic or twelve credits in Hebrew. Under special circumstances, the student may be advised to elect eight credits in cognate courses from the disciplines of history, philosophy, anthropology, sociology, and political science. He is expected to write a thesis or attend a seminar where he must show his ability in using sources and doing original research. He must also show a proficiency in a modern language. A final oral and written examination will be required to test the ability of the student in the language and culture of his area of specialization. The applicant's program of study must have the approval of the major adviser and must include Arabic 0601 and 0780.

COURSES OF INSTRUCTION'

Arabic (ARB)

0101. Introduction to Classical Arabic I. Cr. 4.
Vocabulary, forms, syntax.

0102. Introduction to Classical Arabic II. Cr. 4.
Prereq: ARB 0101 or consent of instructor. Continuation of Arabic 0101.

0103. Introduction to Classical Arabic III. Cr. 4.
Prereq: ARB 0102 or consent of instructor. Intensive and extensive graded reading.

0201. Intermediate Arabic I. Cr. 4.
Prereq: ARB 0103 or consent of instructor. Readings in classical and modern prose; review of grammar.

0202. Intermediate Arabic II. Cr. 4.
Prereq: ARB 0201 or consent of instructor. Continuation of Arabic 0201.

0203. Intermediate Arabic III. Cr. 4.
Prereq: ARB 0202 or consent of instructor. Readings in classical and modern prose; review of grammar.

0390. Directed Study. Cr. 2-6 (Max. 12).
Prereq: consent of chairman. Readings; periodic consultations and reports.

0590. Directed Study. Cr. 2-6 (Max. 12).
Undergrad. prereq: consent of chairman; grad. prereq: consent of chairman and written consent of graduate officer. Readings; periodic consultations and reports.

601. Readings in Arabic Literature. Cr. 4.
Prereq: ARB 0203 or consent of instructor. For students who have filled requirements of second year Arabic. Reading of texts from representative works.

Arabic Historical Texts I. Cr. 4.
ARB 0601 or consent of instructor. Critical reading of historical works from the Middle Ages.

51 for interpretation of numbering system, signs and
18.

0603. Arabic Historical Texts II. Cr. 4.
Prereq: ARB 0602 or consent of instructor. Continuation of Arabic 0602.

0780. Seminar in Development of Arabic Literature. Cr. 4
(Max. 12).

Prereq: ARB 0601. Poetry and prose from fifth century A.D. to the present. Literary forms and content.

Aramaic (ARA)

0620. Biblical Aramaic. Cr. 4.
Prereq: HEB 0507 or consent of instructor. Sounds, grammar, syntax.

0621. Post-Biblical Aramaic. Cr. 4.
Prereq: consent of instructor. Readings in the Targumim of Babylonian and Palestinian origin.

Chinese (CHI)

0101. Elementary Chinese I. Cr. 4.
Training in pronunciation, aural comprehension, oral and written expression; supervised laboratory preparation.

0102. Elementary Chinese II. Cr. 4.
Prereq: CHI 0101 or equiv. Continuation of Chinese 0101.

0103. Elementary Chinese III. Cr. 4.
Prereq: CHI 0102 or equiv. Continuation of Chinese 0102.

0201. Intermediate Chinese. Cr. 4.
Prereq: CHI 0103 or consent of instructor. Review of grammar; practice in oral and written Chinese based on readings.

0202. Intermediate Chinese. Cr. 4.
Prereq: CHI 0201 or consent of instructor. Continuation of Chinese 0201.

0203. Intermediate Chinese. Cr. 4.
Prereq: CHI 0202 or consent of instructor. Continuation of Chinese 0202.

0390. Directed Study. Cr. 2-6.
Prereq: consent of chairman. Directed readings.

0590. Directed Study. Cr. 2-6.
Undergrad. prereq: consent of chairman; grad. prereq: consent of chairman and graduate officer.

Hebrew (HEB)

0101. Elementary Hebrew I. Cr. 4.
Grammar, vocabulary, syntax.

0102. Elementary Hebrew II. Cr. 4.
Prereq: HEB 0101 or consent of instructor. Continuation of Hebrew 0101.

0103. Elementary Hebrew III. Cr. 4.

Prereq: HEB 0102 or consent of instructor. Reading of simple texts.

0209. Intermediate Hebrew I. Cr. 4.

Prereq: HEB 0103 or consent of instructor. Continuation of Hebrew 0103. Readings of simple Biblical, medieval, and modern Hebrew texts.

0210. Intermediate Hebrew II. Cr. 4.

Prereq: HEB 0209 or consent of instructor. Continuation of Hebrew 0209.

0211. Intermediate Hebrew III. Cr. 4.

Prereq: HEB 0210 or consent of instructor. Continuation of Hebrew 0210. Texts of post-Biblical literature; analysis of linguistic, literary, historical aspects; class work plus collateral readings.

0390. Directed Study. Cr. 2-6 (Max. 12).

Prereq: consent of chairman. Readings; consultations and reports.

0500. Post-Biblical Texts. Cr. 4.

Prereq: HEB 0211 or consent of instructor. Selections of Midrashic materials. Exegetical method of the Midrash.

0503. Readings in Tannaitic Literature. Cr. 4.

Prereq: HEB 0500 or consent of instructor. Mishna, Tosephta, Halakhic Midrashim.

0507. Readings in the Bible with Medieval Commentaries. Cr. 4.

Prereq: HEB 0503 or consent of instructor. Representative selections illustrating the methodology of the classical commentaries. Their linguistic, historical and interpretative approaches.

0508. Hebrew Liturgical Texts. Cr. 4.

Prereq: HEB 0507 or consent of instructor. Selected readings in the history, intent and development of Hebrew prayer. Influences from other religious traditions, particularly Islam.

0509. Hebrew Historical Sources (HIS 0660). Cr. 4.

Prereq: consent of instructor. Introduction to early and medieval historical texts and to historiographical material such as Ibn Daud, Ibn Yahya and Yuhasin.

0510. Readings from Medieval Philosophical Texts. Cr. 4.

Prereq: consent of instructor. The medieval systems, particularly the Kuzari and the *Guide to the Perplexed*. Influences of the Greek and Arabic philosophers in the formation of Jewish philosophy. Relationships with Christian thought.

0512. Readings in Modern Hebrew Literature I. Cr. 4.

Prereq: HEB 0211 or consent of instructor. Representative nineteenth century selections.

0513. Readings in Modern Hebrew Literature II. Cr. 4.

Prereq: HEB 0512 or consent of instructor. Representative twentieth century selections.

0590. Directed Study. Cr. 2-6 (Max. 12).

Undergrad. prereq: consent of chairman; grad. prereq: consent of chairman and graduate officer. Readings, consultations, reports.

0782. Seminar in Development of Hebrew Language and Literature. Cr. 4 (Max. 12).

Prereq: HEB 0503 or 0507. All stages analyzed on historical principles.

Near Eastern Studies (NE)

Knowledge of the original language is not required for the following courses. No credit allowed toward fulfillment of undergraduate Foreign Language Group Requirement.

0200. Introduction to the Islamic Civilization of the Near East. Cr. 4.

Survey of the civilization of Near Eastern countries from the beginning of Islam until modern times: government, literature and the arts.

0201. The Bible and Ancient Mythology. Cr. 4.

The Bible and Biblical religion in the context of its antecedents in the ancient world.

0202. Women in the Near East. Cr. 4.

From Sumer through present-day Arab countries. General position of women in the area throughout history; prominent women.

0380. Survey of Jewish Thought I. Cr. 4.

From earliest times to Moses Mendelsohn.

0381. Survey of Jewish Thought II. Cr. 4.

Prereq: NE 0380. Jewish thought from Moses Mendelsohn to the present.

0390. Directed Study. Cr. 2-6 (Max. 12).

Prereq: consent of chairman. Readings; consultations and reports.

0500. Introduction to the Civilization of Southwest Asia. Cr. 4.

Prereq: junior standing or consent of instructor. Ancient times to the present.

0503. Great Cities of the Near East (A H 0503). Cr. 4.

Illustrated survey of the great cities of the Near East from the birth of urban civilization in Mesopotamia to modern times. Urban centers of the ancient Near East: Mecca, Baghdad, Cairo, Jerusalem, and others.

0513. (A H 0543) Survey of Jewish Art. Cr. 4.

Jewish participation in the arts from antiquity to the present.

0533. (ANT 0533) Middle Eastern Societies. Cr. 4.

Prereq: ANT 0210, SOC 0201 or NE 0200 or consent of instructor. Stratification, ethnic and religious groups; peasant, nomadic and urban sectors and their interrelationships; family, marriage and sex roles; nationalism, colonialism and revolutionary movements.

0551. History of Civilization of the Ancient Near East I (HIS 0648). Cr. 4.

History, law and religion based on source readings in translation from the beginnings to the Hellenistic period.

0552. History of Civilization of the Ancient Near East II (HIS 0649). Cr. 4.

Prereq: NE 0551 or consent of instructor. Continuation of NE Eastern Studies 0551.

0554. History and Civilization of Ancient Israel I (HIS 0650) Cr. 4.

Prereq: NE 0551 or consent of instructor. Historical background of biblical history and religion as illustrated by modern

and archeological discoveries from the beginnings to the Hellenistic period.

0555. History and Civilization of Ancient Israel II (HIS 0651). Cr. 4.

Prereq: NE 0554 or consent of instructor. Continuation of Near Eastern Studies 0554.

0556. Development of Biblical Religion I (ANT 0556). Cr. 4.

Religion of Ancient Israel as it developed in the ancient Near East. Comparison of Israel's beliefs and practices with those with which Israel was familiar; similarities and differences.

0557. Development of Biblical Religion II (ANT 0557). Cr. 4.

Development of Biblical religion within the Old Testament with attention to prophetic movement and to the wisdom literature.

0565. History of the Jews I (HIS 0652). Cr. 4.

From the Hellenistic period to the seventh century.

0566. History of the Jews II (HIS 0653). Cr. 4.

Prereq: NE 0565 or consent of instructor. The middle ages and modern times.

0567. History of the Arabs I (HIS 0654). Cr. 4.

Prereq: junior standing or consent of instructor. Muhammad and the rise of Islam.

0568. History of the Arabs II (HIS 0656). Cr. 4.

Prereq: NE 0567 or consent of instructor. Origins of the Islamic state.

0569. History of the Arabs III (HIS 0659). Cr. 4.

Prereq: NE 0568 or consent of instructor. Formation of the Islamic Empire under the Umayyads and the Abbasids.

0575. Ancient Near Eastern Classics in English Translation. Cr. 4.

Works from major literary traditions of the ancient Near East.

0577. Civilization of the Medieval Near East I (HIS 0657). Cr. 4.

Islamic historiography and scholarship, Islamic art.

0578. Civilization of the Medieval Near East II (HIS 0658). Cr. 4.

Continuation of Near Eastern Studies 0577. The Islamic city and urban institutions and the role of minorities in the social and economic life.

0585. Arabic Literature in Translation. Cr. 4.

Survey of Arabic literature: pre-Islamic, medieval and modern.

0590. Directed Study. Cr. 2-6 (Max. 12).

Undergrad. prereq: consent of chairman; grad. prereq: consent of chairman and graduate officer. Readings, consultations, reports.

0595. History and Development of Semitic Languages. Cr. 4.

Non-technical approach to the history and distribution of Western Semitic languages in the Near East area; overview of the languages of the main cultural groups of the area.

Master's Essay Direction. Cr. 3-4.

Prereq: consent of adviser.

Master's Thesis Research and Direction. Cr. 2-12

(Prereq: consent of adviser).

Prereq: consent of adviser.

Asian Studies (ASN)

0100. (IS 0100) China: Past and Present. Cr. 4.

General survey of Chinese civilization, culture and society from early times to the present.

0200. Introduction to Chinese Literature. Cr. 4.

Chinese cultural and literary traditions as seen through several selected works of fiction, drama and poetry.

0390. Directed Study. Cr. 2-6.

Prereq: consent of chairman. Directed readings.

0505. Chinese Classics and Poetry in Translation. Cr. 4.

0506. Chinese Fiction and Drama in Translation. Cr. 4.

0507. Modern Chinese Literature in Translation. Cr. 4.

Development of modern Chinese literature from the late nineteenth century novel; May Fourth movement; significant twentieth century writers; Chinese communist revolutionary literature.

0590. Directed Study. Cr. 2-6.

Graduate cognate credit only. Undergrad. prereq: consent of chairman; grad. prereq: consent of chairman and graduate officer. Directed readings.

PHILOSOPHY

Office: 303 Library Court

Chairman: Richard B. Angell

PROFESSORS

Richard B. Angell, †Cornelius L. Golightly, Raymond Hoekstra (Emeritus)

ASSOCIATE PROFESSORS

Barbara M. Humphries, Gail C. Stine, William D. Stine

ASSISTANT PROFESSORS

Richard B. Hall, Lawrence B. Lombard, Lawrence Powers, Robert J. Titiev, Robert J. Yanal

DEGREE PROGRAMS

Bachelor of Arts — with a major in philosophy

Master of Arts — with a major in philosophy

Doctor of Philosophy — with a major in philosophy

Courses in the Department of Philosophy are designed for four types of service:

1. By their emphasis on clear and cogent thought, by a consideration of the interrelations of fact and value, by training in logic and the methodology of inquiry, by a study and analysis of major philosophical outlooks, they contribute to the liberal education of any student, whatever his predominant interest.
2. They supply cognate courses to students majoring in other departments who wish to study their major subject in its wider philosophical implications.
3. They give departmental majors a wide and intensive training in philosophy. The major appeals to those who wish to take graduate work in philosophy and to those who wish a broad background from which to study and understand the emergence and conflict of ideas in relation to contemporary problems.
4. They supply a relevant major for students who plan a career in such fields as the law or the ministry.

Effective fall, 1975, philosophy courses satisfy the Humanities Group Requirement except for courses cross-listed with mathematics which are treated as mathematics courses under Natural Sciences.

BACHELOR OF ARTS

Students who are planning to major in philosophy or who simply wish advice or consultation about course offerings

† Deceased

should see the director of undergraduate studies in the philosophy department. The department offers a regular major and an honors major.

Major Requirements — A candidate for the regular major must complete a minimum of thirty-six credits in philosophy, including: Philosophy 0203, 0260, either 0221 or both 0120 and 0130; at least one course from each of the following two Philosophy groups: (a) 0231, 0232, 0370, 0524, 0530, 0571; (b) 0240, 0257, 0323, 0350, 0355, 0523, 0550, 0553, 0557, 0560. Twenty additional credits above 0500 are required.

Note: Students should consult the instructor before choosing any 0500 level course rather than an 0200 or 0300 level course, when meeting requirements (a) and (b). 0500 level courses taken to complete (a) and (b) may be used to fulfill the needed twenty additional credits above 0500, though the thirty-six credit minimum must be met.

Honors Program for Majors — Admission will be determined on the basis of the student's over-all record. For admission the student would normally be required to have: (1) a minimum honor point average of 3.3; (2) credit in at least three philosophy courses; (3) a B or better average in philosophy courses previously taken.

A candidate for the honors degree must complete requirements for the regular major, plus 0487, 0488, 0489, to be taken in the fall, winter, and spring quarters respectively during the candidate's senior year, as well as one interdisciplinary seminar from the honors program.

To remain in the honors program, the student must maintain a B average in philosophy courses. To receive an Honors degree the candidate must (a) complete the course requirement, (b) take and pass comprehensive examinations in philosophy during the winter quarter of his senior year, and (c) write an Honors essay of sufficiently high quality, on a topic chosen by the candidate and his instructor in Philosophy 0487. If at any point the student fails to maintain honors standards, his credits will automatically count toward the regular major. Students interested in becoming candidates for the Honors Degree in Philosophy, should consult the director of undergraduate studies in the philosophy department as soon as possible.

MASTER OF ARTS

Plan A — Thirty-six credits in course work plus a thesis.

Plan B — (If approved by adviser) — Forty-five credits in course work plus an essay.

Plan C — (Only for prospective doctoral candidates. Consult department chairman) — Forty-eight credits in course work.

Admission requires approval by the chairman of the department. Prerequisites must include courses in logic, values, a history of philosophy. The Graduate Record Examiner required if the honor point average is below 2.6 in a department from an accredited institution, or below 3.0 from a non-accredited institution.

Candidacy must be established by the time eighteen credits have been earned.

Degree Requirements — A final oral examination is required.

DOCTOR OF PHILOSOPHY

Admission to the doctoral program is open to superior full-time students. Applicants may obtain from the departmental graduate officer information concerning departmental requirements for admission, assistantships and scholarships.

Degree Requirements — A preliminary qualifying examination at the end of the first year of graduate work may be required at the discretion of the department. A final qualifying examination is mandatory. It will consist of a written part and an oral part. It must be taken before registering for the eighth quarter of full-time study (excluding summers but including fellowship and assistantship quarters) toward the Ph.D. degree (i.e., normally in the spring quarter of the student's second year of study); if failed the first time, it must be taken again the following year. Normally, no student may attempt the qualifying examination more than twice.

Competence in a foreign language must be shown by any candidate for the Ph.D.

The candidate's doctoral committee must approve his doctoral dissertation prior to an oral presentation open to all interested faculty and students.

Before receiving a Ph.D. the student must give some classroom lectures under the supervision of the faculty of the Philosophy Department.

A detailed statement of departmental degree requirements is available at the Department office.

Financial Aid — A limited number of assistantships and fellowships are available to qualified students. Information may be obtained from the Director of Graduate Admissions in the Philosophy Department.

COURSES OF INSTRUCTION' (PHI)

0101. Introduction to Philosophy. Cr. 4.

Since the course content varies somewhat with the lecturer, the student is advised to consult the reading lists, or Liberal Arts advisers, prior to registration.

0102. Honors: Introduction to Philosophy. Cr. 5.

Open only to students in Liberal Arts Honors Program. Intensive study of some of the basic problems of philosophy.

10. Contemporary Moral Issues. Cr. 3.

Current moral problems confronting individuals and societies (e.g., abortion, euthanasia, racism, war). Topics to be announced in *Schedule of Classes*.

Logic I. Cr. 3.

Logic of propositions: truth-tables, validity of arguments, tautologies, formal proofs.

for interpretation of numbering system, signs and

0122. Honors Introduction to Logic. (4,1). Cr. 5.

Open only to students in Liberal Arts Honors Program. The logic of propositions and the general logic of predicates and relations; the logic of identity.

0130. Logic II. Cr. 3.

Prereq: PHI 0120 or consent of instructor. The logic of predicates and relations, identity and descriptions, and a brief introduction to set theory.

0203. Greek Philosophy. Cr. 4.

Prereq: sophomore standing or Classics major or one course in philosophy or consent of instructor. Theories about the universe in pre-Socratics, Plato, Aristotle and others.

0221. Intermediate Logic. Cr. 4.

Logic of propositions, general logic of predicates and relations, identity and descriptions; brief introduction to set theory.

0231. Problems in Social and Political Philosophy. Cr. 4.

Prereq: sophomore standing or one course in philosophy or consent of instructor. Readings from classical political philosophers, Plato to Marx.

0232. Ethics. Cr. 4.

Prereq: sophomore standing or one course in philosophy or consent of instructor. Theories concerning the nature of the good life.

0240. Philosophy of Religion. Cr. 4.

Prereq: one course in philosophy or consent of instructor. Philosophical problems of religious belief: the meaning and justifiability of beliefs concerning the existence and nature of God.

0250. Philosophy and Computers. Cr. 3.

Philosophical issues concerning computers and their relationships to human thinking, art, education, ethics. Appropriate computer demonstrations.

0257. Philosophy of Language. Cr. 4.

Prereq: one course in philosophy. Meaning, vagueness, truth, metaphor, translation.

0260. Studies in Modern Philosophy: Descartes to Hume. Cr. 4.

Prereq: one course in philosophy or consent of instructor. Theories of knowledge and reality in the seventeenth and eighteenth centuries.

0323. Introduction to Philosophy of Science. Cr. 4.

Prereq: one course in philosophy or science major, or consent of instructor. Explanation in natural or social sciences, the nature of scientific systems, and related topics.

0350. Problems in Theory of Knowledge. Cr. 4.

Prereq: PHI 0101 or consent of instructor. Theories concerning the nature of human knowledge, its scope and limits, its relation to sense-perception, to memory and related problems.

0355. Problems in Metaphysics. Cr. 4.

Prereq: PHI 0101 or consent of instructor.

0370. Aesthetics. Cr. 4.

Philosophy of beauty and art.

0487. Honors Directed Reading. Cr. 4.

Prereq: philosophy honors candidate.

0488. Honors Directed Reading and Examination. Cr. 4.

Prereq: philosophy honors candidate.

0489. Honors Pro-Seminar. Cr. 6.

Prereq: PHI 0487.

0515. Existentialism. Cr. 4.

Prereq: PHI 0350 or 0355 or consent of instructor. Kierkegaard, Nietzsche, Heidegger, Sartre. Offered in alternate years.

0520. Logic III. Cr. 4.

Prereq. or coreq: PHI 0130 or 0221 or consent of instructor. Modal logic, the logic of imperatives and deontic logic, epistemic logic; the combined logic of quantifiers, modalities, and descriptions; logic of intentions.

0523. Philosophy of Science. Cr. 4.

Prereq: PHI 0323 or consent of instructor. Topics or authors to be announced in *Schedule of Classes*.

**0524. Social and Political Philosophy: Special Topics.
Cr. 4 (Max. 12).**

Prereq: PHI 0231 or consent of instructor. Topics to be announced in *Schedule of Classes*.

0527. Philosophy of Law. Cr. 4.

Prereq: PHI 0101 or consent of instructor. Problems concerning the nature of a legal system, the concept of a valid law, the justification of the judicial decision.

0528. History of Ethics. Cr. 4.

Prereq: one philosophy course or consent of instructor. Historically important moral philosophers from Plato to Mill.

0530. Twentieth Century Analytic Ethics. Cr. 4.

Prereq: one philosophy course or consent of instructor. Important twentieth century moral philosophers in the analytic tradition such as G. E. Moore, Ross, Stevenson, Hare, Rawls.

0532. Topics in Ethics. Cr. 4.

Prereq: one philosophy course or consent of instructor. Important issues in metaethics and normative ethics. Topics to be announced in *Schedule of Classes*.

0535. Logical Systems I (MAT 0535). Cr. 4.

Prereq: PHI 0130 or 0221 or MAT 0510 or 0542 or consent of instructor. Metaresults concerning formal systems for sentential logic and first-order predicate logic; soundness, completeness; independence of axioms.

0539. Logical Systems II (MAT 0539). Cr. 4.

Prereq: PHI 0535 or consent of instructor. Godel's incompleteness theorem for elementary arithmetic; Tarski's theorem; Church's theorem.

0540. Logical Systems III. Cr. 4 (Max. 12).

Prereq: PHI 0535 or consent of instructor. Formal axiomatic treatment of special subject matters such as set theory, algebraic structures, and physical theories. Topics to be announced in *Schedule of Classes*.

0541. Plato. Cr. 4.

Prereq: PHI 0203 or 0260 or 0350 or 0355 or consent of instructor. Selected readings. Offered in alternate years.

0542. Aristotle. Cr. 4.

Prereq: PHI 0203 or 0260 or 0350 or 0355 or consent of instructor. Selected readings. Offered in alternate years.

0543. Medieval Philosophy. Cr. 4 (Max. 12).

Prereq: PHI 0260 or 0350 or 0355 or consent of instructor. Major philosophers such as Augustine, Aquinas, Scotus, Ockam. Topics to be announced in *Schedule of Classes*.

0544. Continental Rationalism. Cr. 4 (Max. 12).

Prereq: PHI 0260 or 0350 or 0355 or consent of instructor. Descartes, Spinoza, Leibniz. Topics to be announced in *Schedule of Classes*.

0545. British Empiricism. Cr. 4 (Max. 12).

Prereq: PHI 0260 or 0350 or 0355 or consent of instructor. Locke, Berkeley, Hume. Topics to be announced in *Schedule of Classes*.

0546. Kant. Cr. 4.

Prereq: PHI 0260 or 0350 or 0355 or consent of instructor.

0548. Pragmatism. Cr. 4.

Prereq: PHI 0260 or 0350 or 0355 or consent of instructor. Theories of meaning, truth, and knowledge in writings of C. S. Peirce, W. James, J. Dewey, and C. I. Lewis or other pragmatists.

0549. History of Philosophy. Cr. 4 (Max. 12).

Prereq: consent of instructor. Topics to be announced in *Schedule of Classes*.

0550. Metaphysics. Cr. 4.

Prereq: PHI 0350 or 0355 or consent of instructor. Selected problems.

0553. Epistemology. Cr. 4.

Prereq: PHI 0260 or 0350 or 0355. Problems in the theory of knowledge.

0555. Philosophy of Mind. Cr. 4.

Prereq: PHI 0350 or 0355 or consent of instructor. Nature and metaphysical status of mental entities. Offered in alternate years.

0557. Philosophy of Language. Cr. 4.

Prereq: PHI 0130 or 0221 and one other philosophy course, or consent of instructor. Philosophical problems concerning meaning, truth, and the nature of language.

0560. Philosophy of Religion. Cr. 4.

Prereq: PHI 0240 and 0350 or 0260 or 0355 or consent of instructor. Selected issues in contemporary philosophical theology.

0563. Twentieth Century Analytic Philosophy I. Cr. 4 (Max. 8).

Prereq: PHI 0350 or 0355 or consent of instructor. Topics chosen from major works, figures and movements in analytic philosophy before World War I, such as Russell, Moore, Frege.

0564. Twentieth Century Analytic Philosophy II. Cr. 4 (Max. 8)

Prereq: PHI 0563 or consent of instructor. Philosophies of logic, atomism and logical positivism. Readings from Russell, or Wittgenstein, or Carnap, or other representatives of this period.

0565. Twentieth Century Analytic Philosophy III. Cr. 4

Prereq: PHI 0564 or consent of instructor. Present anal

sophy. Readings from later writings of Wittgenstein, Austin, or other representatives of this period.

0571. Analysis and Criticism of the Arts. Cr. 4.

Prereq: PHI 0101 or consent of instructor. Art analysis, problems of style, criteria for criticism and evaluation.

0575. Philosophy of Logic. Cr. 4 (Max. 12).

Prereq: PHI 0130 or 0221; and 0350 or 0355 or consent of instructor. The nature of ontological categories, conceptual schemes, or interpretations of logical formalisms. Topics to be announced in *Schedule of Classes*.

0580. Systematic Philosophy. Cr. 4 (Max. 12).

Prereq: consent of instructor. Topics to be announced in *Schedule of Classes*.

0590. Directed Study. Cr. 1-6 (Max. 12).

Undergrad. prereq: consent of chairman; grad. prereq: consent of chairman and graduate officer.

0618. (MAT 0618) Recursive Function Theory. Cr. 4.

Prereq: PHI 0535 or MAT 0510 and 0542 or consent of instructor. Computable operators; primitive recursive functions; recursively enumerable sets; recursive and partially recursive functions; numbered sets (Godel, Kleene, and Post numberings); algorithms and Turing machines; unsolvable problems and degrees of unsolvability.

0779. Seminar in Philosophy of Language. Cr. 6 (Max. 18).

Prereq: PHI 0221 or equiv. or consent of instructor.

0780. Seminar in Legal Philosophy. Cr. 6 (Max. 18).

Prereq: PHI 0527 or consent of instructor. Selected topics.

0781. Seminar in History of Philosophy. Cr. 3-6 (Max. 18).

Study of a philosopher or period.

0782. Seminar in Philosophy of Religion. Cr. 6 (Max. 18).

Prereq: PHI 0560 or consent of instructor.

0783. Seminar in Aesthetics. Cr. 6 (Max. 18).

Prereq: PHI 0370 or consent of instructor.

0784. Seminar in Ethics. Cr. 6 (Max. 18).

Prereq: PHI 0530 or consent of instructor.

0785. Seminar in Epistemology. Cr. 6 (Max. 18).

Prereq: PHI 0544 or 0545 or 0550 or 0557.

0786. Seminar in Metaphysics. Cr. 6 (Max. 18).

Prereq: PHI 0550 or consent of instructor.

0787. Seminar in Logic. Cr. 6 (Max. 18).

Prereq: PHI 0535 or 0557.

0788. Seminar in Political Philosophy. Cr. 6 (Max. 18).

0789. Seminar in Philosophy of Science. Cr. 6 (Max. 18).

Prereq: PHI 0523.

0799. Master's Essay Direction. Cr. 3-4.

Prereq: consent of adviser.

0899. Master's Thesis Research and Direction. Cr. 2-12 (12 required).

Prereq: consent of adviser.

0999. Doctoral Dissertation Research and Direction.

Credits to be arranged. Prereq: consent of doctoral adviser.



PHYSICAL SCIENCE

Office: 135 Physics Research Building

Director: George B. Beard

Staff: Selected from the Departments of Chemistry, Geology, and Physics.

UNDERGRADUATE COURSES

The undergraduate courses in physical science are designed for non-science majors in the College of Liberal Arts and in other colleges within the University who desire some understanding of astronomy, physics, chemistry, and geology within a limit of fourteen credits. The scientific method of thought is emphasized and a foundation laid for an intelligent interest in modern science and its applications.

Credit in the physical science courses may be counted toward fulfillment of the Natural Science Group Requirement.

COURSES OF INSTRUCTION¹ (PHS)

0191. Physical Science: Physics and Astronomy. Cr. 5. Principles; illustrations of the application of scientific methods; background material for further study of astronomy, chemistry, geology. Lectures, quizzes, home experiments. (FWSpSu)

0192. (CHM 0100) Physical Science: Chemistry. Cr. 4. For non-science majors. Chemical facts and theories; a brief analysis of their consequences in history, politics, economics, education.

0193. (GEL 0101) Physical Science: Principles of Geology I. (4,3). Cr. 5. Introduction to rocks and minerals; igneous and volcanic geology; work of running water, glaciers and ground water; geologic time; geophysics and structure of the earth's crust and interior; oceanography. One-day field trip.

0210. Applied Physical Science. (4,2). Cr. 5. Application of basic physical laws to the analysis of simple and complex systems. Forces, motion, fluid motion, heat, electricity, and application to examples of living and inanimate systems.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

PHYSICS AND ASTRONOMY

Office: 135 Physics Research Building

Chairman: George B. Beard

PROFESSORS

George B. Beard, William P. Beres, Henry V. Bohm, Katherine M. Chamberlain (Emeritus), Adriaan M. de Graaf, Harry H. Denman, Lawrence D. Favro, David M. Fradkin, Suraj N. Gupta (Distinguished), Yeong Wook Kim, Leonard O. Roellig, Alvin M. Saperstein, Martin Stearns, Melbourne G. Stewart, Robert L. Thomas

ASSOCIATE PROFESSORS

Juei-Teng Chen, William E. Dorenbusch, Daniel R. Gustafson, Howard C. Hoyt (Emeritus), Patrick F. Kenealy, Pao-Kuang Kuo, William B. Rolnick, Richard M. Spector, Talbert S. Stein, Marshall A. Wheatley (Emeritus)

ASSISTANT PROFESSORS

Gerald L. Dunifer, Ronda N. Jeffery, Walter E. Kauppila, Jerome C. Lawson, Lowell E. Wenger, Yiu-huen Wong, Chi-Chung Yang

INSTRUCTORS

Leonard H. Bieman, Donald L. Jackson, Michael R. Pattison, John X. Przybysz

DEGREE PROGRAMS

Bachelor of Arts — with a major in physics

Bachelor of Science in Physics

Master of Arts — with a major in physics

Master of Science — with a major in physics

Doctor of Philosophy — with a major in physics

The Department of Physics offers courses for students of science and engineering, as well as for those who seek a knowledge of physics as part of their cultural background. It is possible for a good student to complete the requirements for a major in physics and at the same time complete requirements for a major in mathematics. It is also possible for a physics major to earn a secondary school teaching certificate by electing credits in the College of Education under a combined curriculum.

Physics Colloquium—The department colloquium normally is held Thursday afternoons. Graduate students are expected to attend the colloquium. It constitutes an integral part of the departmental graduate program. Advanced undergraduates are invited to attend.

BACHELOR OF SCIENCE IN PHYSICS

Special Curriculum

The Bachelor of Science program in physics is designed for those students who are preparing themselves for graduate study in physics, as well as for those who wish to apply their training in filling positions in government and industrial laboratories.

Requirements

- The regular College Group Requirements except the foreign language. (A foreign language is desirable but not required. French, German, or Russian are recommended).
- (a) Elementary Mathematics Sequence
Mathematics 0211, 0212, 0214, 0215.

(b) Intermediate Mathematics Courses
Mathematics 0519, 0520, 0521, 0522.
It is recommended that Mathematics 0523 and 0524 be taken, particularly by those who wish to go on to graduate work.
- Chemistry 0107, 0108.
- Physics
(a) Elementary Sequence
Physics 0217, 0218, 0219, 0220.

(b) Intermediate and Advanced Courses — at least thirty-two credits in physics at the 0500 level or above, including Physics 0520, 0521, and at least two courses with laboratory.

Advanced Placement

Students should seek to obtain advanced placement in English and foreign languages. Information on advanced placement examinations may be obtained from the Liberal Arts Advising Office.

Suggested Course Sequence

Freshman Year		
Fall Quarter	Winter Quarter	Spring Quarter
CHM 0107 ¹ ... 4	CHM 0108 ... 4	PHY 0218 ... 5
MAT 0211 ² ... 4	MAT 0215 ... 4	MAT 0212 ... 4
ENG 0150 ... 4	PHY 0217 ... 5	English Elective 4
Soc. Sci. Elective ... 4	Soc. Sci. Elective ... 4	Soc. Sci. Elective ... 4
16	17	17

¹ Completion of one year of high school chemistry including laboratory and a satisfactory score on qualifying examination in high school algebra is required. Students enrolling in Chemistry 0107 will be given an Advisory Placement Examination. Superior performance on the examination will allow students the option of enrolling in Chemistry 0108 immediately.

² A satisfactory score on the Mathematics Qualifying Examination or Mathematics 0180 is required.

Sophomore Year

Fall Quarter	Winter Quarter	Spring Quarter
PHY 0219 ... 5	PHY 0220 ... 5	Humanities
MAT 0214 ... 4	MAT 0213 ... 4	Elective ... 4
Soc. Sci. Elective ... 4	Humanities Elective ... 4	MAT 0519 ... 4
Language Elective ... 4	Language Elective ... 4	PHY 0562 ... 4
17	17	16

Junior Year

Fall Quarter	Winter Quarter	Spring Quarter
PHY 0520 ... 4	PHY 0521 ... 4	PHY 0536 ... 4
PHY 0563 ... 4	PHY 0535 ... 4	PHY 0662 ... 3
MAT 0520 ... 3	MAT 0521 ... 4	MAT 0522 ... 4
Language Elective ... 4	Humanities Elective ... 4	Humanities Elective ... 4
15	16	15

Senior Year

Fall Quarter	Winter Quarter	Spring Quarter
PHY 0663 ... 3	PHY 0651 ... 3	PHY 0652 ... 3
PHY 0685 ... 3	PHY 0686 ... 3	PHY 0689 ... 4
MAT 0523 ... 4	MAT 0524 ... 4	Elective ... 3
Bio. Sci. Elective ... 4	Elective ... 3	Elective ... 3
14	13	13

BACHELOR OF ARTS

This program is intended to meet the needs of several kinds of students:

a) students wishing to major in physics who have transferred to Wayne State University after one or two years at community colleges, but whose course background in physics and mathematics does not dovetail in content, level, or timing well enough to permit full completion of the Bachelor of Science degree requirements in a reasonable time;

b) students who wish to pursue a general course of education in the sciences with physics as an area of concentration. Those who undertake such a program are sometimes interested in the study of physics as an integrated part of a broad cultural background;

c) students who decide relatively late in their college career (for example, during the sophomore year) that they wish to major in physics.

It should be emphasized that completion of the Bachelor of Arts program instead of the Bachelor of Science program does not preclude later graduate work in physics. In most cases it will mean that the student will spend part or all of his first year in graduate school making up deficiencies in his physics and mathematics background. Generally speaking such deficiencies may be determined by consulting the Suggested Course Sequence of the Bachelor of Science degree in physics, above.

Requirements

1. The regular College Group Requirements including the language requirement (French, German, or Russian is recommended).
2. (a) Elementary Mathematics Sequence
Mathematics 0211, 0212, 0213, 0214, 0215.
(b) Intermediate Mathematics Courses
Mathematics 0519, 0520, 0521.
3. Chemistry 0107, 0108.
4. Physics 0217, 0218, 0219, 0220. A student may present credits in Physics 0213, 0214, 0215, or equivalent, in lieu of Physics 0217, 0218, 0219 with the consent of the chairman.
5. At least twenty additional credits in physics at the 0500 or 0600 level including 0520 and 0521.

MASTER OF ARTS

Admission — Prerequisite preparation should include a minimum of general college physics with laboratory (equivalent to 0217, 0218, 0219, and 0220), twenty credits in the intermediate physics courses (equivalent to 0520, 0521, 0562, 0563, 0662, 0663, 0685, 0686, 0689); mathematics through 0522 and Chemistry 0108 or equivalent courses.

Candidacy must be established by the time eighteen credits have been earned.

Degree Requirements are as follows:

1. Forty-five credits in course work plus an essay.
2. At either graduate or undergraduate level, Physics 0520, 0521, 0535, 0536, 0562, 0563, 0651, 0652, 0662, 0663, 0685, 0686, or 0689 or equivalent courses.
3. Either Mathematics 0523, and one elective on the 0500 level or above
or
Mathematics 0510, 0511, 0512.
4. Eight credits in physics on the 0700 level or above, exclusive of 0790, 0799, 0899.
5. A departmental final oral examination is required of all candidates.

MASTER OF SCIENCE

Degree Requirements are as follows:

1. Thirty-six credits in course work plus a thesis.
2. The other requirements are the same as requirements (2) through (5) in the Master of Arts program.

DOCTOR OF PHILOSOPHY

Degree Requirements — To be awarded the Ph.D. degree, a student must demonstrate proficiency in the fields listed below:

- a. Mechanics and Dynamics
- b. Electromagnetic Theory
- c. Quantum Physics
- d. Thermodynamics and Statistical Mechanics
- e. Mathematics

The following courses or their equivalent will be required of all candidates for the Ph.D. degree in physics: Physics 0705, 0710-0711-0712, 0720-0721, 0740-0741-0742, 0750-0751, 0765-0766-0767.

In addition, students specializing in experimental or theoretical solid state physics will be required to take Physics 0755-0756-0757.

Students specializing in experimental or theoretical nuclear physics will be required to take Physics 0882-0883.

Students specializing in any branch of theoretical physics will be required to take either Physics 0743-0744 or Physics 0885-0886.

On petition of the student and his thesis adviser, the Departmental Graduate Committee may waive any of the above course requirements.

The student must also complete a minor program, the requirements of which will be set down by the Departmental Graduate Committee, but usually will consist of not less than three courses open only to graduate students. Finally, he must submit an acceptable dissertation.

Final Qualifying Examination — will be given after the student has completed approximately two years of graduate course work. Its purpose is to investigate the student's knowledge of physics, and his capacity for creative thought. The examination will be part oral and part written. The student must submit a *Plan of Work* prior to the time he presents himself for this examination.

The student is referred to the graduate information sections of this bulletin beginning on pages 19 and 24 for additional information pertaining to doctoral study.

FINANCIAL AIDS

Graduate teaching appointments are available to qualified entering graduate students. A graduate course load of approximately ten credits per quarter is usual with such an appointment. Normally about six to eight contact hours of quiz (recitation) sections or laboratory instruction sections per week are arranged.

Research appointments, involving no teaching duties, are also available to qualified students. Stipends for these appointments are comparable to the teaching appointment stipends. Research undertaken while holding such an appointment may form the basis of the master's or doctoral thesis.

In addition, various government fellowships, University fellowships, and a Knoller Physics-Chemistry Fellowship are available within the department. Students applying for either teaching or research appointments are automatically considered for these. Application blanks and specific information concerning the above appointments may be obtained by writing to the chairman.

COURSES OF INSTRUCTION¹

The parenthetical notation at the end of the course description indicates the most probable quarters in which the course will be offered. (Su=Summer, W=Winter, Sp=Spring, F=Fall)

Astronomy (AST)

0201. Descriptive Astronomy: The Solar System. Cr. 4.
Historical development; Kepler's and Newton's laws; the earth; tides; the moon as revealed by the Apollo space shots; light, telescopes; x-ray, infrared, ultraviolet, and radio astronomy; asteroids; meteors; comets; formation of the solar system; life on other worlds. Only a minimal knowledge of high school mathematics is needed. (FWSpSu)

0202. Descriptive Astronomy: Stellar Systems. Cr. 4.
Prereq: AST 0201 or coreq AST 0201 and consent of instructor. Motion of the stars, stellar spectra; binary stars; the sun; composition and evolution of stars, interstellar medium; galaxies; cosmology. (FWSpSu)

Physics (PHY)

0104. Twentieth Century Physics: An Introduction to Einstein, Relativity and Quanta. Cr. 4.
Prereq: PHS 0191 or high school physics. Einstein and the origin of the special theory of relativity; the curvature of space; the uncertainty principle; the quantum theory; the interaction of observer and measurement; fission and fusion; the influence of modern physical theories on society and philosophy. (Sp)

0106. Energy in the Environment. Cr. 3.
Environmental problems associated with modern technology on a densely populated planet. Current issues: the impact of energy crisis and pollution on society, fossil fuels, nuclear power, solar energy, energy from agriculture. No previous knowledge of science or mathematics necessary. (F)

0213. General Physics. (4,2). Cr. 4.
Prereq: high school algebra and trigonometry. Materials fee: \$10. For general Liberal Arts students and also for students preparing for medicine, dentistry, pharmacy. Open to other interested students. Mechanics and heat. (FWSpSu)

0214. General Physics. (4,2). Cr. 4.
Prereq: PHY 0213. Materials fee: \$10. Continuation of Physics 0213. Electricity, magnetism, and light. (FWSpSu)

0215. General Physics. (4,2). Cr. 4.
Prereq: PHY 0214. Materials fee: \$10. Continuation of Physics 0214. Modern physics. (FWSpSu)

0217. General Physics. (5,2). Cr. 4-5 (Max. 10).
Prereq: MAT 0211; coreq: MAT 0212. Materials fee: \$10 when electing for five credits. For students specializing in physics, chemistry, mathematics, or engineering. Not open to students who have taken Physics 0220 prior to winter quarter 1976. Repeat only with written consent of instructor. Statics, kinematics, dynamics, energy and linear momentum, rotational dynamics, angular momentum, applications to planetary and atomic systems. (FWSpSu)

0218. General Physics. (5,2). Cr. 4-5.
Prereq: PHY 0217, MAT 0212. Material fee \$10 when electing for five credits. Charge quantization, stationary charges and associated fields, currents and circuit elements, magnetic fields, Hall effect, magnetic induction effect, dielectric and magnetic materials, a.c. circuits, electromagnetic waves. (FWSpSu)

0219. General Physics. (5,2). Cr. 4-5 (Max. 10).
Prereq: PHY 0217. Material fee \$10 when electing for five credits. Not open to students who took PHY 0220 prior to winter 1976; repeat only with written consent of instructor. Wave motion, geometrical optics, interference of waves, optical instruments, resonance, continuum mechanics, ideal gases and kinetic theory, thermal properties of matter, thermodynamics. (FWSpSu)

0220. General Physics. (5,2). Cr. 4-5 (Max. 10).
Prereq: PHY 0218 and 0219 or consent of instructor; coreq: MAT 0214. Material fee \$10 when electing for five credits. Not open to students who took PHY 0219 prior to winter 1976 quarter; need written consent of instructor to repeat. Relativity, photoelectric and Compton effects, atomic physics, introduction to quantum mechanics, nuclear physics, elementary particles, physics of the solid state. (FW)

0390. Directed Study. Cr. 1-3 (Max. 6).
Prereq: written consent of adviser and instructor. Primarily for physics majors who wish to continue in a field beyond material covered in regular courses, or who wish to study material not covered in regular courses, including certain research participation.

0502. Physical Basis of the Fine Arts. Cr. 4.
No credit for physics majors. Prereq: elementary algebra or consent of instructor. Music, color and perception; waves and information-energy transfer; generation of musical sounds, perception of tone quality, the physics and physiology of sound and color; psychophysics of music and light, holography; nerves and the brain-coding of energy output. (W)

0506. Introductory Physical Science for Pre-Service Teachers. (2,4). Cr. 4.
No physics major credit. Prereq: PHS 0191 or equiv. Physical science background required for the employment of the Introductory Physical Science (IPS) secondary school curriculum.

0520. Theoretical Mechanics I. Cr. 4.
Prereq: PHY 0215 or 0219, MAT 0215; coreq: MAT 0519. Particles, harmonic motion, orthogonal coordinates, systems of particles, conservation laws, rigid body motion. (F)

0521. Theoretical Mechanics II. Cr. 4.
Prereq: PHY 0520 and MAT 0519. Statics, gravitation, accelerated frames of reference, LaGrange's and Hamilton's equations. (W)

0535. Light I. (3,3). Cr. 3-4.
Prereq: PHY 0215 or 0219, MAT 0214; coreq: MAT 0215. Only non-physics majors may take course without laboratory. Intermediate course in geometrical and physical optics. Wave motion, interference, diffraction, refraction, dispersion, polarization. (W)

0536. Light II. (3,3). Cr. 3-4.
Prereq: PHY 0535. Only non-physics majors may take course without laboratory. Continuation of Physics 0535. (Sp)

0562. Electrical Measurements I. (2,4). Cr. 4.
Prereq: PHY 0215 or 0219 or consent of instructor. A.C. and D.C.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

circuits, electronic circuits using vacuum tubes and semiconductor devices with emphasis on circuits of special interest to physicists such as A.C. and D.C. amplifiers and pulse circuitry. (Sp)

0563. Electrical Measurements II. (2,4). Cr. 4

Prereq: PHY 0562. Continuation of Physics 0562. (F)

0570. Basic Electronics. (3,3). Cr. 4.

Prereq: PHY 0214. Not open to physics majors. Basic electronics for biologists, chemists, high school science teachers. D.C. and A.C. circuits, vacuum tube circuits, transistor circuits, amplifiers, oscillators, applications to measurement and instrumentation. (W)

**10602. Modern Physics I: For High School Teachers. Cr. 3
(Max. 9).**

No credit toward graduate degree in physics; students should confer with adviser concerning credit in the College of Education. Prereq: consent of instructor. Open to those in-service teachers of secondary schools who are under National Science Foundation; others must have written consent of chairman. Elementary principles of modern atomic and nuclear physics, particularly as applied to the PSSC high school physics program.

0606. Introductory Physical Science for Junior High School Teachers. (2,2). Cr. 3-6.

Prereq: consent of instructor. Ordinarily open only to secondary school in-service teachers under National Science Foundation. The physical science background required for the employment of the Introductory Physical Science Program.

0608. Introduction to Biomedical Interdisciplinary Curriculum Project (BICP) for High School Teachers I. Cr. 5.

Open only to selected secondary school teachers. A two-week institute with team and teaching interactions in study of the medical and health fields; focus on the most difficult laboratories.

0609. Introduction to Biomedical Interdisciplinary Curriculum Project (BICP) for High School Teachers II. Cr. 3 (Max. 3).

Prereq: PHY 0608. Open only to selected secondary school teachers under terms of an N.S.F. grant. Implementation of difficulties encountered in the classroom; introduction of new methods; dissemination conferences and evaluation of the program.

0610. Introduction to Biomedical Interdisciplinary Curriculum Project (BICP) for High School Teachers III. Cr. 5.

Prereq: PHY 0609. Open only to selected secondary school teachers under terms of an N.S.F. grant. A two-week summer institute to present advanced BICP materials, to demonstrate the teaching of BICP, and to focus on the most difficult advanced laboratories. Includes extensive array of "bread-board" computers.

0611. Introduction to Biomedical Interdisciplinary Curriculum Project (BICP) for High School Teachers IV. Cr. 3.

Prereq: PHY 0610. Open only to selected secondary school teachers under terms of an N.S.F. grant. Twelve evenings of two and a half hour sessions during the academic year to discuss twelfth grade implementation difficulties encountered in the classroom, to introduce new methods, conduct dissemination conferences and to evaluate the program.

0651. Thermodynamics and Kinetic Theory I. Cr. 3.

Prereq: PHY 0219 or consent of instructor. Development and critical analysis of concepts of thermodynamics, first and second laws of thermodynamics, thermodynamic equilibrium, Nernst's postulate. Illustrative applications to problems of physical interest.

Kinetic theory of gases and introduction to classical statistical mechanics. (W)

0652. Thermodynamics and Kinetic Theory II. Cr. 3.

Prereq: PHY 0651. Continuation of Physics 0651. (Sp)

0662. Electricity and Magnetism I. Cr. 3.

Prereq: PHY 0214 or 0218, MAT 0520. Physical and mathematical treatment of electrostatics, steady and quasi-steady currents. Maxwell's equations. (Sp)

0663. Electricity and Magnetism II. Cr. 3.

Prereq: PHY 0662. Continuation of Physics 0662. Electromagnetic waves and their interaction with matter. (F)

0685. Modern Physics I. Cr. 3.

Prereq: PHY 0219, 0521, and MAT 0519 or consent of instructor. Special theory of relativity, black body radiation, specific heats, spectra and atomic structure, x-rays, introduction to quantum mechanics. (F)

0686. Modern Physics II. Cr. 3.

Prereq: PHY 0685. Continuation of Physics 0685. (W)

0689. Nuclear Physics. Cr. 4.

Prereq: PHY 0686. Properties of nuclei, natural and artificial radioactivity, particle accelerators and detectors, induced nuclear reactions, elementary particles. (Sp)

0705. Elementary Solid State Physics. Cr. 4.

Prereq: PHY 0686. Contemporary solid state physics dealing primarily with experiments in this area and with modern descriptive models of solids.

0706. Survey of Elementary Particle Physics. Cr. 4.

Prereq: PHY 0689. Experimental aspects; relativistic kinematics; quantum mechanical scattering, reaction, and decay theory; historical survey; strong and weak interactions; classification of particles.

0710. Methods of Theoretical Physics I. Cr. 3.

Prereq: MAT 0522 or equiv. or consent of instructor. Techniques for solution of physical problems.

0711. Methods of Theoretical Physics II. Cr. 3.

Prereq: PHY 0710. Continuation of Physics 0710.

0712. Methods of Theoretical Physics III. Cr. 3.

Prereq: PHY 0711. Continuation of Physics 0711.

0720. Advanced Mechanics I. Cr. 3.

Prereq: PHY 0521 or consent of instructor. Variational principles, central forces, transformation theory, Hamilton-Jacobi theory.

0721. Advanced Mechanics II. Cr. 3.

Prereq: PHY 0720. Continuation of Physics 0720. Small oscillations, rigid body motion, scattering theory.

0725. Relativity. Cr. 3.

Prereq: PHY 0663. Postulates of the special theory of relativity formulated and applied to development of relativistic mechanics and relativistic electrodynamics. Basic ideas of the general theory of relativity, with an introduction to mathematical formulation of the general theory.

0740. Quantum Mechanics I. Cr. 4.

Prereq: PHY 0686 and 0720 or consent of instructor. Schrodinger wave equation, its meaning and solutions, as applied to simple physical and chemical problems. Perturbation theory. Theory of atomic collisions, matrix mechanics, transformation theory, angular momentum and spin, theory of measurement.

0741. Quantum Mechanics II. Cr. 4.

Prereq: PHY 0740. Continuation of Physics 0740.

0742. Quantum Mechanics III. Cr. 4.

Prereq: PHY 0741. Continuation of Physics 0741.

0743. Relativistic Quantum Mechanics I. Cr. 4.

Prereq: PHY 0742. Specialized problems using relativistic wave equations and introductions to field theory.

0744. Relativistic Quantum Mechanics II. Cr. 4.

Prereq: PHY 0743. Continuation of Physics 0743.

0750. Statistical Mechanics I. Cr. 3.

Prereq: PHY 0652, 0740 or consent of instructor. Classical and quantum statistical mechanics and applications.

0751. Statistical Mechanics II. Cr. 3.

Prereq: PHY 0750. Continuation of Physics 0750.

0755. Solid State Physics I. Cr. 3.

Prereq: PHY 0741; coreq: PHY 0742 or consent of instructor. Crystal structure, elastic constants, introduction to band theory, semiconductors, magnetic properties of materials, optical properties of solids.

0756. Solid State Physics II. Cr. 3.

Prereq: PHY 0755. Continuation of Physics 0755.

0757. Solid State Physics III. Cr. 3.

Prereq: PHY 0756. Continuation of Physics 0756.

0765. Electromagnetic Theory I. Cr. 3.

Prereq: PHY 0663, MAT 0522, or consent of instructor. Microscopic and macroscopic Maxwell's equations, special relativity, LaGrangian and Hamiltonian formulation of EM theory, energy-momentum tensor, conservation laws, radiation, scattering, applications.

0766. Electromagnetic Theory II. Cr. 3.

Prereq: PHY 0765. Continuation of Physics 0765.

0767. Electromagnetic Theory III. Cr. 3.

Prereq: PHY 0766. Continuation of Physics 0766.

0790. Directed Study. Cr. 1-4 (Max. 9).

Prereq: written consent of adviser, instructor, chairman of graduate studies committee, and graduate officer must be obtained prior to registration. Application forms available in department office. Primarily for graduate students in physics who wish to continue in a field beyond material covered in regular courses or who wish to study material not covered in regular courses.

0795. Colloquium. Cr. 1.

Offered for S and U grades only. Must be elected every quarter by

all graduate physics students. Lectures given by visitors, graduate staff and advanced graduate students.

0796. Research in Physics. Cr. 1-12 (Max. 20).

Prereq: consent of adviser, written consent of chairman of graduate studies committee.

0799. Master's Essay Direction. Cr. 3.

Prereq: consent of adviser.

0855. Solid State Physics IV. Cr. 3.

Prereq: PHY 0742 and 0757. Advanced band theory and applications, electrical and thermal conductivity, superconductivity, current problems of interest.

0882. Nuclear Physics I. Cr. 3.

Prereq. or coreq: PHY 0742 or consent of instructor. Static electric and magnetic moments, bound properties of the N-P system, nuclear interactions, saturation properties, exchange forces, isospin.

0883. Nuclear Physics II. Cr. 3.

Prereq: PHY 0882. Continuation of Physics 0882. Electromagnetic transitions, single particle and collective nuclear models, scattering, nuclear reactions.

0885. Quantum Theory of Fields I. Cr. 3.

Prereq: PHY 0742. General principles. Quantization of radiation and electron fields and their interaction. Quantization of meson fields, interaction of mesons, nucleons and photons.

0886. Quantum Theory of Fields II. Cr. 3.

Prereq: PHY 0885. Interaction representation and the scattering operator. Calculations of matrix elements and renormalization, calculation of scattering cross sections, lifetimes, bound-state problems.

0890. Special Topics. Cr. 1-4 (Max. 18).

More than one section may be elected in a quarter. Prereq: consent of instructor, adviser, and chairman of graduate studies committee. Topics and prerequisites for each section to be announced in *Schedule of Classes*.

0899. Master's Thesis Research and Direction. Cr. 2-12 (12 required).

Prereq: consent of adviser.

0999. Doctoral Dissertation Research and Direction.

Credits to be arranged. Prereq: consent of doctoral adviser.

POLITICAL SCIENCE

Office: 856 Mackenzie Hall

Chairman: C. Dale Vinyard

PROFESSORS

Edward L. Cushman, Theodore B. Fleming, Jr., Louis L. Friedland, Wesley L. Gould, Donald S. Hecock (Emeritus), Max Mark, Charles J. Parrish, Maurice M. Ramsey (Emeritus), Murray B. Seidler, Charles W. Shull (Emeritus), Carl O. Smith (Emeritus), C. Dale Vinyard, Maurice Waters

ASSOCIATE PROFESSORS

Philip R. Abbott, Donald A. Calkins, Pi-chao Chen, Charles Elder, Ray E. Johnston, Bryan D. Jones, Clifford L. Kaufman, Robert W. Miller, Alfred M. Pelham (Emeritus), Henry J. Pratt, Jorge I. Tapia-Videla

ASSISTANT PROFESSORS

Mary-Jane Clarke, James C. Dick, Mark S. Frankel, Normand G. Gomolak, A. Lee Hunt, James A. Jarvis, William O. Jenkins, Thomas Kelly, Larry Taylor

DEGREE PROGRAMS

Bachelor of Arts — with a major in political science

Bachelor of Science in Law Enforcement

Master of Arts — with a major in political science

Master of Public Administration

Master of Public Administration in Criminal Justice

Doctor of Philosophy in Political Science

The Department of Political Science contributes to the objectives of the College of Liberal Arts by its concern for the increasingly vital role of politics and government in the modern world. This is done through analyses of the processes for the formulation and administration of public policy, domestic and foreign, and through cultivating in students an awareness of the opportunities and obligations of citizenship at local, state, and national levels.

The field of political science is of special importance to students whose career goals include:

1. Professions likely to involve participation in public affairs, including law, engineering, public health, social welfare, and education.
2. Administrative or executive positions in government — local, state, or federal.
3. Teaching of political and social science at the secondary, junior college, and university levels.

4. Positions in the diplomatic, foreign, and overseas programs of the U. S. Government, and of large private concerns doing business abroad.

5. Leadership and executive roles in citizens' organizations, political parties, economic and social interest groups, municipal research bureaus, and voluntary health and welfare organizations.

6. Positions associated with mass communications, such as radio, television, and newspapers, where basic understanding of public affairs and governmental policies and organization is required for accurate reporting and analysis.

7. Positions in private enterprise where knowledge of governmental processes is essential, such as in taxation, industrial relations, legislative liaison, and public relations.

BACHELOR OF ARTS

Major Requirements—The political science major must complete Political Science 0101 (Introduction to American Government), Political Science 0306 (Political Science Analysis Laboratory) and a minimum of thirty-two additional credits in the Department. (With the approval of the political science undergraduate adviser, P S 0564 may be substituted for P S 0306.) It is suggested that the major take Political Science 0306 before taking any 0500 level courses. The listing of courses by fields given below is intended to assist the student in planning his program, but no particular distribution of courses across fields is required.

A minimum of eight resident credits at the 0500-0600 levels is required.

BACHELOR OF SCIENCE IN CRIMINAL JUSTICE

The purpose of this curriculum is to provide an understanding of the criminal justice system in a framework of general education. It is assumed that an understanding of the foundations on which the social order rests, as well as knowledge of the components of the criminal justice system — law enforcements, the courts, and correctional modalities — will improve the effectiveness of practitioners in the criminal justice system.

The degree is awarded upon completion of 180 credits in the program recommended. Course work leading to the degree is distributed as follows:

	<i>credits</i>
English	8-12
Humanities	16
Criminal Justice	60
Physical Science*	4-5
Psychology*	16
Social Sciences	36
Speech	4
General Electives	32-36

* Refer to college group requirements to make certain that the proper laboratory courses is included.

The criminal justice program is designed for persons who have had police experience and students who desire to enter the field of criminal justice. Practical field experience is desirable and may be arranged with the adviser's assistance, although it is not required for the degree. For additional information contact the director of the program, Louis L. Friedland, Professor of Political Science.

MASTER OF ARTS

Plan A or Plan B

Admission — Applicants for this degree should consult the graduate adviser of the department. A strong undergraduate performance is a prerequisite and substantial undergraduate preparation in the social sciences is recommended. Applicants must take the aptitude section of the Graduate Record Examination and have the results sent to the department.

Further information on this and other graduate requirements and programs is contained in the department's pamphlet *Policies and Procedures Governing Graduate Students in Political Science*, available from the department on request.

Candidacy must be established by the time twenty-four credits have been earned. An official *Plan of Work* must be filed by that time.

Degree Requirements — Forty-four credits in graduate courses, including at least thirty-two credits in political science, plus four credits for an essay are required. Students may choose to write a thesis, in which case they receive twelve credits.

The student is expected to distribute his course work between a major and a minor field (which may be outside Political Science) as filed in his *Plan of Work*. Of the courses taken, all students shall complete at least sixteen credits at or above the 0700 level. Moreover, the student's program should include sixteen additional credits at the 0600 level or higher. A written, comprehensive examination in the major field is required. A final, oral examination on the thesis is required. No final oral examination is required on the essay. All students are required to complete Political Science 0564 (Statistics) or its equivalent and Political Science 0727 (Research Design).

No credit will be granted for graduate courses in Political Science (including the Criminal Justice area) taken at Wayne State University prior to formal admission to the M.A. program.

MASTER OF PUBLIC ADMINISTRATION

In this degree program, graduate study in the organization and administration of government, directed field training, and research are designed to prepare students for service in governmental and quasi-public agencies.

Admission — Applicants for this degree should consult the graduate adviser of the department. Strong undergraduate

social sciences preparation is recommended. Additional undergraduate course work may be specified where such preparation is inadequate. Applicants must take the aptitude section of the Graduate Record Examination and have the results sent to the department. Applications are due July 15, November 15, February 15 and May 15 for the quarters following.

Candidacy — must be established by the time twenty-four credits have been earned. An official *Plan of Work* must be filed by that time. Field work may be required under competent supervision in a governmental or quasi-public agency.

The preparation of a thesis or essay of substantial character and excellence is required. A written, comprehensive examination in public administration and a final oral examination are required, covering the thesis.

The student is required to earn a minimum of forty-eight credits for this degree, including a minimum of twenty credits in the field of public management. Political Science 0564 (or its equivalent) and 0727 are required. The student is required to present one minor area which may be outside political science. The requirement as to the level of courses is the same as for the regular M.A. degree (see above).

Criminal Justice Administration — The program requires forty-four graduate credits plus a four credit essay. The student must complete a minimum of twenty credits in the major (Criminal Justice) and sixteen credits in the minor (Public Management). The requirement as to the level of courses is the same as for the regular M.A. degree (see above). The adviser for this specialization is Professor Louis Friedland.

Gerontology — A Master of Public Administration degree with a specialization in gerontology is offered by the department. The adviser for this specialization is Professor Charles J. Parrish.

DOCTOR OF PHILOSOPHY

Admission to the doctoral program is open only to a limited number of superior students. Those interested are urged to secure the pamphlet *Policies and Procedures Governing Graduate Students in Political Science* by writing to the department, and to review the regulations concerning graduate study in the Graduate Division section of this bulletin.

All students are required to take the Graduate Record Examination. All applications for admission to the doctoral program in political science must have the approval of the departmental graduate committee. Applications are considered once a year for admission for the fall quarter. Applications for admission and financial aid are due by February 15. The Ph.D. is a scholarly degree, indicating not merely superior knowledge of political science but also intellectual initiative and an ability to design and carry out independent research. Students in their pre-candidacy stage will be judged on the basis of these attributes as well as on their grade-point performance. Possession of a master's degree does not automatically warrant admission to doctoral study.

Requirements—The doctoral applicant must complete written and oral final qualifying examinations in three political science fields and one minor field.

Admission to candidacy for the doctor's degree will usually require at least two years of full-time graduate study beyond the bachelor's degree. It is granted upon fulfillment of the following requirements:

1. Completion of departmental and Graduate Division residence and course requirements, including Political Science 0727 and 0826;
2. Filing an approved *Plan of Work* with the Graduate Division;
3. Completion of language and statistics requirements (Political Science 0564 and 0664 or their equivalents);
4. Completion of a preliminary oral qualifying examination;
5. Completion of the final qualifying examination (written and oral).

The Doctoral Dissertation—The doctoral candidate is required to submit a doctoral dissertation on a topic satisfactory to his Faculty Advisory Committee, designed to test his proficiency in political science analysis, his capacity for independent and creative research, and his ability to perfect and follow through on an appropriate research design.

Assistantships—Teaching and research assistantships in the Department of Political Science may be available to qualified students. Inquiries and applications should be addressed to the graduate adviser.

Fields—The following is a list of the fields in which the Department of Political Science offers coursework, along with the advanced undergraduate and graduate courses which compose the fields:

American Government and Public Policy: 0512, 0513, 0516, 0517, 0521, 0522, 0523, 0536, 0540, 0607, 0703, 0704, 0715, 0725, 0729, 0804.

Comparative Politics: 0502, 0503, 0504, 0505, 0506, 0507, 0508, 0509, 0510, 0535, 0575, 0631, 0674, 0701, 0706, 0707, 0709, 0810.

International Relations: 0582, 0583, 0587, 0671, 0683, 0687, 0781, 0782, 0783, 0787, 0881, 0882, 0883.

Political Processes and Behavior: 0511, 0519, 0528, 0533, 0534, 0564, 0577, 0579, 0605, 0607, 0664, 0666, 0714, 0715, 0716, 0725, 0735, 0764, 0770.

Political Theory: 0561, 0565, 0566, 0567, 0569, 0761, 0762, 0769, 0826, 0865.

Public Administration: 0520, 0530, 0533, 0549, 0603, 0607, 0625, 0629, 0631, 0649, 0702, 0708, 0715, 0720, 0722, 0723, 0724, 0729, 0733, 0734, 0737, 0738, 0771, 0835.

Public Law: 0540, 0541, 0542, 0547, 0583, 0645, 0649, 0740, 0743, 0845.

Urban and Metropolitan Politics: 0551, 0552, 0553, 0555, 0650, 0717, 0733, 0734, 0747, 0770, 0771, 0772, 0850.

COURSES OF INSTRUCTION' (P S)

Introductory Courses

0101. American Government: Power and Policy. Cr. 4.
Institutions and functions of the American political system. Why some policies succeed while others fail; role of citizens in government; uses and abuses of power in American politics.

0103. Introduction to American Politics. Cr. 5.
Political processes and functions in the United States; federal, state, and local government structures.

0200. (US 0200) Introduction to Urban Studies (ECO 0200) (GEG 0203) (HIS 0200). Cr. 4.

Prereq: sophomore standing. Urban phenomena, past and present; quality and nature of urban life; major concerns of urban areas; perspectives and techniques of various urban-related disciplines. Topics to be announced in *Schedule of Classes*.

0201. Introduction to Urban Politics. Cr. 4.

Prereq: P S 0101 or consent of instructor. Political and administrative processes against the economic and sociological background of the urban environment.

0208. Contemporary Political Ideologies. Cr. 4.

Prereq: P S 0101 or consent of instructor. Comparison of ideologies, political institutions, and economic systems. Democracy vs. authoritarianism; open vs. closed societies. Capitalism, socialism, communism contrasted.

0209. Introduction to Comparative Politics. Cr. 4.

Prereq: P S 0101. Principles of comparative political study. Comparison of constitutional systems, political cultures, institutional arrangements. Political development.

0281. World Politics. Cr. 4.

Prereq: P S 0101 or consent of instructor. Character of international politics; behavior of states; struggle for power, quest for peace.

0304. Introduction to Political Analysis. Cr. 4.

No credit after Political Science 0660. Aims and objectives of political analysis; the major theoretical approaches employed in analysis; its assumptions and limitations.

0306. Political Analysis Laboratory. (2,2). Cr. 4.

Prereq: P S 0101. Required of majors. Major techniques and tools used for gathering and analyzing political data; laboratory experience in the application of these techniques.

0330. Administrative Practice. Cr. 2-4.

Prereq: consent of chairman. Discussion of work training experience with faculty and practitioners; integration of work experience with academic course work.

0401. Current Issues in American Politics. Cr. 2.

Not for major credit. American election and party issues and processes.

0402. Current Issues in American Foreign Policy. Cr. 2.

Not for major credit. Crucial issues of current foreign policy.

² See page 661 for interpretation of numbering system, signs and abbreviations.

Advanced Undergraduate Courses

0501. Government and Politics of Canada. Cr. 4.

Introduction to the Canadian political process.

0502. Government and Politics of France and Italy. Cr. 4.

The political culture, socialization processes and functions of the two systems.

0503. Government and Politics of the United Kingdom. Cr. 4.

The British system within its foundational and dynamic framework: society, institutions, political processes.

0504. Governments and Politics of the Two Germanys: East and West. Cr. 4.

Political, social, and economic foundations of the two German states; the divergence and convergence.

0505. Government and Politics of the Soviet Union. Cr. 4.

Social, economic and politico-administrative institutions of the Soviet Union. Soviet Union in world affairs.

0506. Government and Politics of Eastern Europe. Cr. 4.

Background of original Soviet domination, impact of polycentrism, political institutions of representative East European countries.

0507. Government and Politics of the Near and Middle East. Cr. 4.

Political forces, governmental institutions, social and economic problems, strategic significance of selected countries.

0508. Government and Politics of East Asia. Cr. 4.

Development of modern governmental institutions and processes in China, Japan, India, other East Asian areas.

0509. Government and Politics of Latin America. Cr. 4.

Principal Central and South American countries.

0510. Government and Politics of Contemporary Africa. Cr. 4.

Movements of nationalism and independence; relationships of traditional political systems, economic and social change, national integration; especially Sub-Saharan Africa.

0511. Public Opinion and the Political Process (SOC 0511) (U P 0535). Cr. 4.

Prereq: P S 0306 or consent of instructor. The role of public opinion in the political system. Factors important in the formation of political opinions; assessment of the opinions of mass and specialized publics for the political decision-making process.

0512. Political Parties and Elections. Cr. 4.

The development, structure, and function of American political parties; their electoral and governmental roles; comparisons with other party systems.

0513. The Legislative Process. Cr. 4.

Functions, structure, and procedures of American legislative bodies with special attention to Congress; comparison with foreign legislative institutions and groups.

0516. American Political Reform Movements. Cr. 4.

Socialism, communism, liberalism, feminism and the black revolution, in terms of historical backgrounds, impact on the larger society, contemporary strengths, weaknesses and prospects.

0517. State and Local Government. Cr. 4.

Structure, institutions and processes, stressing intergovernmental relations.

0519. Survey Research Methods. Cr. 2-4.

Prereq: P S 0306 or consent of instructor. Theory and uses of sample surveys, sampling, questionnaire construction, interviewing, coding, data analysis.

0520. Introduction to Public Administration (U P 0585). Cr. 4.

Prereq: P S 0101 or consent of instructor. Governmental structure and administrative organization. Concepts and techniques of public management. Impact on modern society.

0521. Michigan Politics. Cr. 4.

Recent political developments; role and organization of political parties; influence and workings of interest groups; relationships to political activity in Midwest and in Nation.

0522. Interest Groups and the Political Process. Cr. 4.

Prereq: P S 0101 or consent of instructor. Structure, techniques, and internal politics of interest groups, their roles in policy making and relationships with other groups, such as political parties, legislative bodies, and administrative agencies.

0523. The American Chief Executive. Cr. 4.

Prereq: P S 0101 or consent of instructor. Distinctive roles of the elective chief executive—President, governor, mayor—compared and contrasted with appointive executives and European counterparts. Impact of executive leadership on parties, policy, public opinion, bureaucracy. Institutionalization of the executive.

0528. Political Socialization. Cr. 4.

Prereq: P S 0101. Process of political socialization; role of family, schools and peer groups; resocialization to new political attitudes.

0530. Science, Technology and Politics. Cr. 4.

Prereq: P S 0101 or consent of instructor. Impacts of science and technology on society, response of American political institutions to those impacts, and the possible political alternatives required to deal with them. (Former P S 0628)

0533. Bureaucracy, Public Policy, and Power Structure (U P 0545). Cr. 4.

Prereq: P S 0101 or consent of instructor. Theory and development of modern governmental bureaucracy; its role in development of public policy. Cooptation and constituency building; role of bureaucracy as part of the total power structure.

0534. Politics of Age. Cr. 4.

Prereq: P S 0101. Analysis of age based on political behavior as reflected in public opinion, voting and political organization; reference to special governmental programs and agencies serving the aged.

0535. Politics of Modern China. Cr. 4.

Examination of the decline and collapse of the traditional socio-political order; causes and consequences of the emergence of the Communist regime; comparison with other Third World nations.

0536. Comparative State Politics. Cr. 4.

Prereq: P S 0101 or consent of instructor. Comparative analysis of politics in the United States, intergovernment relations, policy outcomes and contemporary political science techniques.

0540. American Legal Systems and Processes (U P 0595). Cr. 4.
Prereq: P S 0101. Legal institutions, processes and doctrines; their relation to the formulation of public policy and solution of social problems.

0541. Constitutional Law. Cr. 4.
Prereq: P S 0540 or consent of instructor. Principles of American constitutional government. Origins and nature of judicial review. Separation of powers. Federal-state and inter-state relations.

0542. Freedom and Constitutional Government. Cr. 4.
Prereq: P S 0540 or consent of instructor. Government and personal liberty. Problems of due process, civil liberties, regulation of economic and social activities.

0547. Administrative Law. Cr. 4.
Prereq: P S 0540 or consent of instructor. Legal foundations of administrative powers and processes. Legal restraints on administration of regulatory functions.

0549. Politics of Economic and Business Regulation (ECO 0509). Cr. 4.
Prereq: P S 0101; ECO 0102 recommended. Politics of the economic regulation process (pollution, antitrust and consumer protection laws); interplay between economics and politics; problems of economic regulation through legal rules.

0552. Metropolitan Politics and Development (U P 0555). Cr. 4.
Prereq: P S 0201 or consent of instructor. Alternative interpretations of forces and factors shaping metropolitan growth. Interaction of community groups, power structure, intergovernmental relations.

0553. Urban Political Process. Cr. 4.
Prereq: P S 0101. No graduate credit. Policy formation in major cities and suburbs as influenced by the activity of leading interest groups, including organized labor, race protest organizations, ethnic groups, chambers of commerce, and citizen groups.

0555. Comparative Urban Politics. Cr. 4.
Prereq: consent of instructor. No graduate credit. Local government and politics abroad; restructured metropolitan regions; planning and development control procedures.

0561. Origins of Western Political Thought. Cr. 4.
Prereq: P S 0101 or consent of instructor. Plato, Aristotle and other founders of political philosophy; concepts of justice and resistance.

0562. Modern Political Thought. Cr. 4 (Max. 8).
Prereq: P S 0101 or consent of instructor. Political thought from Machiavelli to the present.

0564. Statistical Analysis in Political Science I. Cr. 4.
Use of descriptive statistics in political science and public administration. Introduction to probability, statistical inference, and the test of hypotheses; applications to the study of politics.

0565. Political Theory in the Twentieth Century. Cr. 4.
Major views of twentieth century political reality, their sources and implications; principal ideas of contemporary political philosophy and political science.

0566. Marxian and Communist Thought. Cr. 4.
Review, evaluation, and analysis of historic and operational com-

munist thought and action systems in USSR, China, and other countries.

0567. (HIS 0583) Development of East Asian Political Thought. Cr. 4.
Chinese and Japanese political philosophies from Confucianism to contemporary thought.

0568. Environmental Law and Public Policy. Cr. 4.
No graduate credit. Environmental issues from the perspective of public policy and law; ability of the political and legal systems to deal with major environmental problems and their causes; existing laws and regulations.

0569. American Political Thought. Cr. 4.
From 1620 to date. Distinctive American contributions to Western political thought; emphasis on relevance to contemporary democratic theory.

0575. Politics of Environmental Crisis and Population Growth. Cr. 4.
Examination of the political consequences of two great modern challenges: environmental crisis in the developed Western World and population growth in the underdeveloped Third World. Former P S 0672)

0577. Psychology of Political Leadership (PSY 0566). Cr. 4.
Prereq: P S 0306 or consent of instructor. Nature and theories of leadership; identification of leaders; kinds of political leaders; leadership behavior, style, and effectiveness; motivational factors in political leadership.

0579. Women and Politics. Cr. 4.
Investigation of the role of women in political life.

0580. (ECO 0240) Women's Studies II: Women in American Political and Economic Life. Cr. 4.
No graduate credit. Interdisciplinary analysis of current issues affecting women in the United States: political participation, employment and earnings, discrimination; women's contributions to family income; child care; the women's movement; laws and the Equal Rights Amendment.

0582. International Organizations and Administration. Cr. 4.
Prereq: P S 0281 or consent of instructor. Theories of international organizations, analysis of assumptions, goals; creation of theoretical model. United Nations.

0583. International Law. Cr. 4.
Prereq: P S 0281 or consent of instructor. Relationship between international law and politics; historical survey of the schools of law; areas of agreement and disagreement on principles of law.

0584. The Politics of Disarmament. Cr. 4.
Prereq: P S 0101 and 0281. No graduate credit. Policies of disarmament from viewpoints of sociology, psychology and political science.

0587. Decision Processes in American Foreign Policy. Cr. 4.
Prereq: P S 0281 or consent of instructor. Administration; forces and factors at work in shaping policy.

0589. Pro Seminar in Political Science. Cr. 4.
Prereq: P S 0101. Undergraduate credit only. Varied selected topics to be announced in *Schedule of Classes*.

0592. Special Topics in Political Science. Cr. 4.
Prereq: P S 0101; consent of instructor. Open only to advanced undergraduates. Topics to be announced in *Schedule of Classes*.

0594. Field and Experimental Studies of the Environment (ENV 0594). Cr. 4.

Prereq: senior standing, completion of ENV 0499 and 0595. No graduate credit. Independent work in the field of environmental studies; individual research in the laboratory, in the field or through an internship in government or private enterprise.

0603. Organization Effectiveness: Meaning and Measurement. Cr. 4.

Prereq: P S 0520 or consent of instructor. Problems, procedures and indicators used to assess organization performance.

0605. The Political Process and the Afro-American. Cr. 4.

The central characteristics of the American political process; the socio-cultural-political characteristics of Afro-Americans as a group within the American power system; the capacities of the political process to resolve conflicts.

0607. Public Policies and Their Politics. Cr. 4.

Policy development and implementation in a selected area.

0615. Voting Behavior. Cr. 4.

Prereq: P S 0306 or consent of instructor. Examination of the causes and consequences of the voting decision; methods of studying electoral behavior.

0625. Public Personnel Administration. Cr. 4.

Prereq: P S 0520 or consent of instructor. Open only to seniors and graduate students. Recruitment, testing, classification, compensation, promotions, training, employee relations. (Former P S 0524)

0629. Employee Relations in the Public Sector. Cr. 4.

Prereq: P S 0520 or consent of instructor. Open only to seniors and graduate students. Growth and development of employee organizations in federal, state, and local governments. The right to representation of their own choosing, to engage in collective bargaining and negotiations with public employers in the same manner as employees in private industry.

0631. Comparative Public Administration. Cr. 4.

Administrative systems of selected nations. Relationship of national culture to administrative organization and behavior.

0645. Comparative Judicial Politics. Cr. 4.

Conceptual distinction between law, judicial structure, and process. Structural and functional analysis of courts and variations.

0649. Politics and Local Justice. Cr. 4.

Description and analysis of the operation of local legal systems and their interaction with political structures.

0650. Problems of Urban Government (U P 0652). Cr. 4 (Max. 8).

Prereq: P S 0201 or consent of instructor. Current problems.

0664. Statistical Analysis in Political Science II. Cr. 4.

Prereq: P S 0564 or equiv. Modern statistical theory applied to the analysis of politics, with particular emphasis on multiple regression and correlation and the analysis of variance.

0666. (PSY 0666) Political Psychology. Cr. 4.

Prereq: P S 0306 and two other courses in political science; or

consent of instructor. Cognitive and emotional factors — loyalty, aggression, anxiety, leadership, propaganda — as they affect domestic and international politics. Biographies and public opinion data.

0671. Systems Analysis of International Relations. Cr. 4.

International relations through the use of general systems theory and appropriate techniques of systems analysis.

0674. Politics of Developing Areas. Cr. 4.

Political processes in underdeveloped and emerging nations; forces shaping political decisions; evolution of political institutions.

0683. International Conflict and Its Resolution. Cr. 4.

Types of international conflict and such methods of resolution as negotiation, mediation and other third party procedures.

0687. Soviet Foreign Policy. Cr. 4.

Prereq: P S 0281 or consent of instructor. Background of Soviet foreign policy and the policy-making process. Distinctive features of the policy output.

0690. Directed Study. Cr. 1-4 (Max. 4).

Prereq: consent of chairman. For seniors having a B or better average in political science courses. Not open to graduate students. Graduate students should elect Political Science 0790.

Graduate Courses

0701. Approaches to the Study of Comparative Government. Cr. 4.

Developmental and functional comparisons of foreign governments. Contemporary methodologies.

0702. Contemporary Approaches to Public Management. Cr. 4.

Comprehensive study of seminal writings in public management.

0703. The American Political System. Cr. 4.

Intensive review of literature analyzing the American political system.

0704. Problems in American Government. Cr. 4 (Max. 8).

Problems of current interest.

0706. Comparative Communist Systems. Cr. 4.

Differences and commonalities among political systems claiming the same ideological source of legitimacy. Comparison of select socio-political phenomena in a variety of Communist systems, including formal and informal political institutions.

0707. Comparative Regional Analysis. Cr. 4.

Principles of regional analysis applied to a particular region.

0708. Organization Theory. Cr. 4.

Prereq: consent of instructor. Open only to graduate students. Review of organization theory. (Former P S 0620)

0709. Social Structure and Political Power in Latin America. Cr. 4.

Comparative analysis of relationships between social stratification systems and political structures in Latin America.

0710. Urban Political Analysis. Cr. 4.

Core readings and methods in urban political analysis.

0714. Theories of the Political System. Cr. 4.

Review of the systematic conceptualization of societal organization and change. Authority, mass society, structure and function, elites, class and status, ideology.

0715. Seminar in the Analysis of Public Policy. Cr. 4.

Theoretical framework; methodological techniques; intellectual problems in the systematic study of public policy.

0716. Introduction to Behavior and the Political Process. Cr. 4.

Behavioral materials on politics, field studies; experimentation in the application of socio-psychological techniques to study of political process; use of political behavior laboratory in processing of data.

0717. Urban Public Policy. Cr. 4.

Prereq: P S 0710 or consent of instructor. Nature, causes and consequences of government outputs in urban areas. Delivery of urban public services.

0720. Politics of Taxation and Budgeting. Cr. 4.

Politics of revenue-raising and governmental spending, types of budgets, substantive and political issues in budget formulation, evaluation of government spending and the new federal budget process.

0722. Programming and Operational Analysis. Cr. 4.

Techniques of modern management. Process and methods analysis, programming, scheduling, budgeting, work measurement and work simplification programs, operations research in public administration.

0723. Public Policy and the Aged. Cr. 4.

Prereq: P S 0520 or consent of instructor. Analysis and evaluation of public policy issues involving government role and programs in relation to senior citizens.

0724. Administrative Organization and Management. Cr. 4.

Prereq: P S 0520 or consent of instructor. Administrative situations.

0725. Seminar in Legislative Behavior. Cr. 4.

Survey of the research techniques employed in the study of legislative bodies; analysis of the resulting literature.

0727. Research Design in Political Science. Cr. 4.

Prereq: P S 0564 or equiv. or consent of instructor. Principles of the design of research in the study of politics and public bureaucracies. Evaluation of designs commonly used in social science research.

0729. Intergovernmental Relations. Cr. 4.

Cooperation and competition between units of government — federal-state, state-local, and federal-local. Finance and taxation, education, highways, housing, urban renewal.

0730. Public Management Training. Cr. 2-4.

Prereq: consent of department graduate adviser. Work experience in government agency, or related civic or voluntary organization.

0731. Public Management of Science and Technology. Cr. 4.

Demands on policy making institutions resulting from the impact

of scientific and technological developments and the responses of governmental institutions and processes to these demands.

0732. Urban Administration. Cr. 4.

Administrative factors and delivery of urban public services.

0733. Comparative Urban Politics and Administration. Cr. 4.

Urban political phenomena in America and foreign nations.

0734. Administrative Aspects of Urban Planning (SOC 0704) (U P 0735). Cr. 4.

Prereq: consent of instructor. Goals and policy structure for urban planning, regional planning, zoning, and related administrative problems.

0735. Social Experimentation as Policy Analysis. Cr. 4.

Open only to graduate students. Use of social experiments to aid in the formulation of public policy examined from the perspectives of administration, ethics, law and politics.

0737. Advanced Organization Theory. Cr. 4.

Analysis and evaluation of concepts and theories of organizational management and behavior.

0738. Problems in Public Administration. Cr. 4 (Max. 8).

Prereq: P S 0520 or consent of instructor. Problems or problem areas of current significance.

0740. Advanced Survey of Public Law. Cr. 4.

Current developments. Especially for students who have not had undergraduate courses in the subject.

0743. Topics in Law and Politics. Cr. 4 (Max. 8).

Prereq: consent of instructor.

0747. Urban Political and Social Change (U P 0755). Cr. 4 (Max. 4 for L.A. students; others max. 12).

Prereq: admission to Urban Studies Corps of Center for Urban Studies. Problems in policy of housing, health, employment, education and environmental pollution. Power and the contributions of various disciplines to programs of effective political and social change.

0761. Topics in History of Political Thought. Cr. 4 (Max. 8).

Prereq: consent of instructor.

0762. Justice and Equality. Cr. 4.

Analysis of conflict between equality and justice.

0764. Multivariate Models in Political Science. Cr. 4.

Prereq: P S 0664 or equiv. Theory of linear regression, generalized least squares, basic path analytic models, non-recursive models, principal component analysis.

0765. Measurement. Cr. 4.

Prereq: P S 0664 or equiv. Introduction to basic measurement models of use in political science, cumulative scaling, proximity scaling, psychophysical applications, multidimensional scaling.

0769. Topics in American Political Thought. Cr. 4 (Max. 8).

Prereq: consent of instructor.

0770. Introduction to General Systems Theory. Cr. 4.

General systems theory and its uses in the analysis of political structures, processes, and functions.

0771. Intersystem Relations (U P 0775). Cr. 4.
Relations between organizations, between municipalities and other metropolitan area authorities, and between different levels of government.

0772. Regional and Metropolitan Systems (U P 0765). Cr. 4.
Special district authorities, councils of government, regional economic authorities, and other structures designed to facilitate collaboration across subnational and national boundaries.

0781. Theories of International Politics. Cr. 4.
Contemporary theories concerning national interest, power politics, decision making, systems theory, with application of insights from sociology and psychology.

0782. Trans-National Organizations. Cr. 4.
Regional organizations, alliances, understandings. Social and economic organizations transcending national boundaries.

0783. Comparative Foreign Policies. Cr. 4.

0787. Advanced World Politics. Cr. 4.

0790. Directed Study. Cr. 2-8.
Prereq: 24 graduate credits in political science; consent of chairman and graduate officer.

0795. Readings in Political Science. Cr. 4 (Max. 8).
Prereq: consent of adviser.

0799. Master's Essay Direction. Cr. 2-4 (4 required).
Prereq: consent of adviser.

0804. Seminar in American Government. Cr. 4 (Max. 8).

0810. Seminar in Comparative Politics. Cr. 4 (Max. 8).
Political-functional and operational rather than institutional aspects of political systems.

0826. Philosophic Problems in Inquiry. Cr. 4.
Required of all Ph.D. applicants. Exploration of selected problems in the philosophy of social science.

0835. Seminar in Public Administration. Cr. 4 (Max. 8).

0845. Seminar in Public Law. Cr. 4 (Max. 8).
Prereq: 8 credits in public law or consent of instructor.

0850. Seminar in Metropolitan Government. Cr. 4 (Max. 8).

0865. Seminar in History of Political Thought. Cr. 4 (Max. 8).

0881. Seminar in International Politics. Cr. 4 (Max. 8).

0882. Seminar in International Organization. Cr. 4 (Max. 8).

0883. Seminar in International Law. Cr. 4.

0890. Research in Political Science. Cr. 2-16.
Prereq: consent of doctoral committee. Open only to students admitted to doctoral study.

0899. Master's Thesis Research and Direction. Cr. 2-12 (12 required).
Prereq: consent of adviser.

0999. Doctoral Dissertation and Research.
Credits to be arranged.
Prereq: consent of doctoral committee.

Criminal Justice (CRJ)

0321. Administration of Justice I. Cr. 4.
Criminal justice system related to social justice for beginning students in law enforcement, criminology, corrections, sociology, social welfare, government, and urban affairs.

0322. Administration of Justice II. Cr. 4.
Prereq: CRJ 0321. Continuation of Criminal Justice 0321 with emphasis on the operational services: patrol, the detective division, traffic, vice control, the youth division, non-crime functions.

0324. Traffic Control. Cr. 4.
Essentials of traffic law; organization of traffic functions. Enforcement policies and procedures. Identification and analysis of traffic problems. Experiments in traffic control.

0326. Investigation. Cr. 4
Nature, collection and preservation of evidence, observation, interrogation.

0331. Principles of Loss Prevention. (3,1). Cr. 4.
Overview of the functional operations of various specialized areas of security: theft, risk control, security surveys and loss prevention management in proprietary and governmental institutions.

0332. Introduction to Security. (3,1). Cr. 4.
Security: historical, philosophical and legal framework for security operations; detailed presentations of specific security processes and programs currently and historically utilized in providing security.

0333. Industrial Fire Protection. Cr. 4.
Fire prevention and loss control. Essentials for security officers of fire causes, fire suppression and fire prevention.

0350. Law Enforcement Operational Information Systems. Cr. 4 (Max. 8).
The essentials of reporting and record keeping and their uses in management. Administration of record systems. Introduction to electronic data processing.

0360. Police Service in the Community. Cr. 4.
Prereq: consent of adviser. Role of the police officer in relation to the customs and problems of the community. The administrator's responsibilities to ethnic and minority groups. Comparative analysis of techniques being used by major police agencies to alleviate tensions.

0370. Introduction to Corrections. Cr. 4.
Various dispositional alternatives in the criminal justice system.

0391. Juvenile Justice: An Introduction. (3,1). Cr. 4.
Prereq: a minimum of eight credits in criminal justice courses.

Overviews of the juvenile justice system, inter-relationships with other components of juvenile justice systems, and an evaluation of curriculum procedure and philosophies.

0421. Issues in Criminal Justice. (3,1). Cr. 2-4.

Crucial problems in various phases of criminal justice operations, research practice, and policy.

0490. Directed Study. Cr. 1-4.

Prereq: consent of instructor. Open only to Criminal Justice majors. Independent study and research.

0520. Trends in Status Determinations. Cr. 4.

Prereq: twelve credits in criminal justice or consent of adviser. Effects of status determinations on justice systems outcomes from an historical perspective; legislation, roles and occupational relations.

0527. Correctional Administration. Cr. 4.

Prereq: CRJ 0370 or consent of adviser. In-depth study of the administration and organization of federal, state and local correctional systems; the correctional process, client treatment models and alternatives to incarceration.

0528. Pro-Seminar: Evidence. Cr. 4.

Prereq: minimum of twelve credits in criminal justice. Admissibility of evidence in courtroom proceedings; problems of hearsay, real and demonstrative evidence, circumstantial and testimonial evidence and how this applies to law enforcement officers.

0530. Comparative Security Systems. Cr. 4.

Prereq: CRJ 0332 or consent of instructor. Security systems and their requirements in specific areas: banks, governmental hospitals and transportation security programs and computerized systems.

0531. (CSC 0501) Computers and Research (L S 5496) (U P 0552). Cr. 4.

Prereq: one and one-half units high school algebra. Introduction to computing, data processing, and computer utilization for research; computer languages, library programs and their use; job control languages.

0536. (SOC 0540) Sociology of Crime. Cr. 4.

Prereq: SOC 0201 or SS 0191-0192 or ANT 0210. Theories of causation of crime and treatment of convicted adult offender with reference to history and philosophy of punishment, operation of prison systems, probation and parole.

0538. (SOC 0543) Theory of Probation and Parole. (4,1). Cr. 4.

Prereq: SOC 0340 or 0540. Theories, current practices, field techniques. Projected plans evaluated. Emphasis on case materials.

0560. Strategies for Crime Control. Cr. 4.

Substantive criminal justice literature in interpreting basic issues of crime control strategies, implicit and explicit, in public policies as they relate to theories of crime causation, theories of deterrence and prevention of criminal behavior.

0571. Public Law I. Cr. 4.

No graduate credit; no credit toward political science major. The history and development of criminal law and social control. Salient principles of law which have application to police work. Organization and jurisdiction of courts administering criminal law. Definition of crimes, their requisite elements, and the penalties provided.

0572. Public Law II. Cr. 4.

No graduate credit; no credit toward political science major. Prereq: CRJ 0571. Continuation of Criminal Justice 0571 with emphasis on criminal procedure including the law of arrest, search and seizure. The rights of the accused, the duties of police officers, and the constitutional restraints on methods of law enforcement.

0573. Public Law III. Cr. 4.

No graduate credit; no credit toward political science major. Prereq: CRJ 0572. Continuation of Criminal Justice 0572 with emphasis on the law of evidence and the particular roles of exclusion and admissibility. Types of evidence and their probative value, general principles relating to proof of questions of fact in criminal trials. The respective roles of prosecutor, police officer, judge, jury, and defense counsel in the judicial process.

0591. Delinquency Prevention and Control. Cr. 4.

No credit toward political science major. Prereq: SOC 0541 or consent of instructor; criminal justice majors only. Review of law-enforcement administrative and judicial procedures in processing of juveniles. Evaluation of law-enforcement approaches to police-juvenile contacts.

0600. Field Studies (US 0600). Cr. 2-4 (Max. 8).

Prereq: consent of adviser. Supervised professional study conducted in the criminal justice field setting.

0611. Evaluation in Criminal Justice Programs. Cr. 4.

Prereq: 12 credits in criminal justice or administration of justice. Theoretical and practical criteria necessary to facilitate the evaluation of criminal projects.

0612. Establishing In-Service Training Programs. Cr. 4.

Prereq: 12 credits in criminal justice or administration of justice. Theoretical and practical criteria necessary to facilitate the establishment of in-service training concepts in criminal justice program.

0623. Pro-Seminar: Advanced Law Enforcement Administration. Cr. 4 (Max. 8).

Prereq: CRJ 0322 or consent of instructor. Continuing police management problems: organization and objectives, planning and coordination, public support.

0624. Research Methods in Criminal Justice. Cr. 4.

Graduate credit for criminal justice majors only. No credit toward political science major. Prereq: criminal justice major. Planning and design for research in police administration and related fields. Applications of selected methods.

0625. Labor Relations Law in a Criminal Justice System. Cr. 4.

Prereq: PS 0520 or equiv. or consent of instructor. Development of police labor organizations, particularly in Michigan.

0637. (SOC 0654) Organized Crime: Its History and Social Structure. Cr. 4.

Prereq: SOC 0540. Open only to juniors, seniors, and graduate students. Social organizations of organized crime in the United States with particular emphasis on organized crime as a social system and its relationship to society. (Former CRJ 0537)

0650. Comparative Criminal Justice Systems. Cr. 4.

Prereq: consent of instructor. Selected criminal justice systems in other nations.

0660. Social and Legal Dynamics of Child Abuse. Cr. 4.

Prereq: CRJ 0391 or consent of instructor. Dynamics and psychopathology of child abuse both in terms of its incidence and impact on the family, society, and the numerous social and legal agencies involved in the detection, processing, and treatment of both child abusers and the abused.

0691. Counseling in the Juvenile Justice System. Cr. 4.

Prereq: CRJ 0391 or 0591 and consent of instructor. To provide juvenile justice students and practitioners with an understanding of a variety of counseling theories and techniques and the appropriate use of these methods with different types of juveniles in trouble.

0693. Practicum in Juvenile Justice Counseling. Cr. 4.

Prereq: CRJ 0591 or consent of instructor. Supervised practice in interviewing techniques and counseling methods frequently utilized in the treatment of adolescents in the juvenile justice system.

0720. Public Policy and the Criminal Justice System. Cr. 4.

Interrelationship of criminal justice system components and the political setting surrounding the formulation and administration of public policies for crime control.

0736. Seminar: Criminal Justice Administration. Cr. 4.

Prereq: consent of instructor. Basic and in-depth analysis of advanced management theories, concepts, and techniques as they apply to the criminal justice system. Case method technique employed.

0778. (SOC 0782) Seminar in Criminological Theory. Cr. 2-4 (Max. 8).

Prereq: introductory course in the particular field and consent of instructor.

0876. (PSY 0876) Seminar in Clinical Psychology. Cr. 1-4.

Prereq: written consent of instructor. Current research. Topics to be announced in *Schedule of Classes*.

PSYCHOLOGY

Office: 764 Mackenzie Hall

Chairman: Sheldon Alexander

Associate Chairman: Donald N. Elliott

PROFESSORS

Joel W. Ager, Sheldon Alexander, David Asdourian, Alan R. Bass, C. G. Browne (Emeritus), Donald N. Elliott, LaMaurice H. Gardner, Arthur Kornhauser (Emeritus), Sheldon J. Lachman, Gerald S. Leventhal, Sheldon G. Levy, Wilson McTeer (Emeritus), Hjalmar Rosen, Gerald Rosenbaum, Eli Saltz, E. B. Skaggs (Emeritus), Charles M. Solley, Ross Stagner, Laurence J. Stettner, John E. Teahan

ASSOCIATE PROFESSORS

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ASSISTANT PROFESSORS

Thomas Z. Cassel, Glenn S. Davidson, Alan G. Glaros, Mark S. Goldman, Ramon M. Henson, Andres Inn, Joan K. Lessen-Firestone, Steven A. Lewis, John M. Martin, Alida D. Quick, Annette U. Rickel, Rochelle L. Robbins, Daniel L. Rourke, R. Douglas Whitman

ADJUNCT PROFESSORS

Donald F. Caldwell,* Bernard Chodorkoff, Marvin Hyman (Detroit General Hospital), Stephen T. Kitai, †Phillip M. Rennick, Eli Z. Rubin

ADJUNCT ASSOCIATE PROFESSORS

Shirley I. Dobie,* David Faigenbaum (Children's Hospital), Greta G. Fein, James L. Grisell,* Valerie Klinge,* Frank M. Koen, David Lachar,* Richard M. Lee, Herbert Silverman,** Raymond H. Starr

ADJUNCT ASSISTANT PROFESSORS

Michael F. Abramsky, Rodabe Bharucha-Reid, Joan Chodorkoff, Robert R. Freedman, Newton L. P. Jackson, Thomas W. Keiser,* Ronald F. Lewis,* Helene Lycaki,* Herbert B. Malos,** Freda A. Milstein, Janet L. Pallas, Ned Papania,** William J. Rowell, Theriault J. Todd, Floyd Wylie, Andrew T. Yang (Oakland County Juvenile Court)

*Lafayette Clinic

**Veterans Administration Hospital

† Deceased

DEGREE PROGRAMS

Bachelor of Arts — with a major in psychology

Bachelor of Science — with a major in psychology

Master of Arts — with a major in psychology

Doctor of Philosophy — with a major in psychology and specializations in clinical, cognitive, developmental, industrial, industrial/organizational physiological or social psychology

Undergraduate training offered by the Department of Psychology serves three related purposes. For the liberal arts major, the study of psychology provides an opportunity for increased self-understanding and insight into the behavior of others; for students preparing for medicine, law, education, business, and other professions, psychology provides important basic knowledge useful in these vocations; and for those planning to carry on graduate study in psychology, instruction seeks to establish a sound foundation for a career in professional psychology. While such undergraduate training may provide excellent preparation for positions in business, in government, in social service, an undergraduate major in psychology does not prepare the student for a position as a professional psychologist. As a minimum, the master's degree is required, and for most professional positions, the doctorate is essential. Information about positions in professional psychology, and the training necessary, can be obtained in the office of the department. Students planning to major in psychology should review the *Orientation Bulletin for Majors* before applying for acceptance. This bulletin is available in the department office or will be mailed on request.

BACHELOR OF ARTS or BACHELOR OF SCIENCE

Major Requirements — To graduate with a major in psychology a student must complete satisfactorily at least forty-five credits in the department, including the introductory course, in a sequence approved by his major adviser. Degree requirements include Psychology 0302 plus three of the following courses: Psychology 0305 (perception), 0307 (learning), 0310 (statistical methods), 0360 (social behavior), 0405 (introduction to physiological) and 0505 (physiological); one of these three must be 0305 or 0307. In addition, the student must complete at least eight credits in courses numbered 0500 or above. Psychology 0493 and 0496 do not count toward the forty-five-credit requirement. Transfer students must complete at least twenty credits in psychology at Wayne. The maximum number of hours in psychology for any major is sixty-eight. To receive the bachelor of science degree, the students must earn a minimum of forty credits in natural science outside the field of psychology.

Honors Program — Students with an over-all grade-point average of 3.0 are eligible for admission to the Departmental Honors Program. Satisfactory completion of the honors program will lead to a degree "With Honors in Psychology" on the diploma. Students interested in the program can obtain detailed information from the Departmental Honors Program supervisor.

Honors Sections, providing smaller classes, somewhat more advanced readings, and opportunities for independent work

by students are offered in the courses 0198 (Introductory Psychology), 0360 (Psychology of Social Behavior), and 0430 (Abnormal Psychology). In addition, there is an Honors Directed Study course (0590), an Honors Problem course (0596) and a two-quarter Senior Honors seminar (0597-0598) in which a senior thesis is completed.

Honors Citation for Majors — Psychology majors earning an over-all grade point average of 3.0 and a grade point average of 3.5 in psychology courses will receive a departmental citation at the time of graduation.

Graduate Work Prerequisites — Students who intend to do graduate work in psychology should take Psychology 0302 (research) and all five courses listed under the *Major Requirements* above. Additional courses in mathematics, biology, and sociology are strongly recommended.

Non-majors are invited to consult with departmental advisers regarding optimum course selections for various purposes.

MASTER OF ARTS and DOCTOR OF PHILOSOPHY PROGRAMS

General Admission Requirements — Although the Department of Psychology does award the Master's Degree, only applicants who are interested in completing the Doctoral Degree will be considered for admission to the graduate program. Applicants must normally have better than a 3.0 average in course work, including psychology courses. A minimum of eighteen credits in psychology is required, with courses in experimental (laboratory) psychology and statistical methods in psychology. Courses in college mathematics and in biology are recommended. The Psychology Department requires at least four recommendations, and completion of the departmental application form, in addition to the transcripts and application form required by the Graduate Division. The Graduate Record Examination is required of all applicants. Appropriate forms and instructions are available from the Graduate Office of the Department of Psychology. Applicants will not be accepted into the program until all this material has been received and evaluated.

Doctoral applicants must have all forms in the hands of the Psychology Department Graduate Committee before February 15 for Fall applications. Most appointments will be made by April 1. In exceptional cases, applications will be accepted until June 1.

All graduate students are expected to maintain at least a B average. Students receiving grades of C in more than two courses will be dropped from the doctoral program. Courses at the 0600 level may be taken for graduate credit, but only two of these courses will be accepted for *major* credit in this department.

MASTER OF ARTS

The M.A. degree must be earned by all students in the doctoral program. In addition to the thesis, at least twenty-five credits toward the M.A. must be earned in the Department of Psychology. Required courses in the Master's program are

Psychology 0715 and one of the following: Psychology 0708, 0709, 0725, and 0762.

Emphasis is placed on factual knowledge, theory, and research methods in general psychology. The thesis involves the use of laboratory or field data and must be approved by the adviser and one other member of the graduate faculty selected by the Departmental Graduate Committee. A final oral examination pertaining to the thesis and all courses included in the student's degree program is required. Requirements for the doctoral degree include earning the M.A. degree.

DOCTOR OF PHILOSOPHY

In order that students may acquire a broad background in the factual and theoretical content of psychology, four courses will be required of all doctoral candidates: Psychology 0708, 0709, 0725, and 0762. To supplement these, and to emphasize the quantitative approach in psychology, three advanced courses in statistics and measurement, 0715, 0716, and 0717, are also required. Each student will be expected to establish competence in one specialized area, together with a lesser concentration in a minor area (minimum of eight credits). A minor outside the department (twelve credits) is also required.

Students specializing in *clinical psychology* take courses in clinical research, psychopathology, diagnostic methods, and therapeutic interventions. Requirements also include supervised experience in diagnosis and treatment of clients in practicum courses and during an internship. Special opportunities for training and research in neuropsychology and community psychology are available in the clinical program.

The *cognitive processes* area provides for specialization in learning, perception, concept formation, and reasoning. Research is usually conducted in the Center for the Study of Cognitive Processes.

The *developmental* area provides specialization in cognitive and emotional changes from infancy to old age. Emphasis is on general principles of development, but each student may select an age-range for special consideration. For research on young children, the Merrill-Palmer Institute provides access to its facilities. Cooperative arrangements also exist with various other agencies.

The *industrial/organizational* program offers concentration in organizational theory and functioning, personnel selection, motivation, union-management relations, and managerial development. Opportunities exist for part-time work in local corporations and for teaching in management and labor courses.

A specialty is offered in *physiological, comparative, and sensory* psychology. An extensive animal-psychological laboratory, an auditory research laboratory, and other relevant facilities are available.

The *social psychology* area offers concentration in attitude theory and change, decision-making, environmental psychology, small group behavior, political psychology, applied social psychology, and social learning.

Every doctoral student is required to do some teaching and some research other than the Ph.D. dissertation before the completion of his or her degree. The required examinations are a final qualifying examination, including written and oral portions, normally taken after the completion of the Master's thesis and ninety hours of graduate coursework; and an oral examination upon completion of the dissertation, pertaining to both coursework and the dissertation.

All psychology students in a doctoral program must be engaged in a training assignment each academic year they are in residence. This is required of all full-time students, irrespective of whether a stipend is received in relation to the training assignment. The student's area committee is responsible for seeing that this requirement is met each year. The training assignment involves appropriate teaching, research, or professional activities.

ASSISTANTSHIPS

Numerous fellowships, as well as teaching and research assistantships in the Department of Psychology and in a variety of cooperating agencies (including Lafayette Clinic, Public Health Service traineeships, Veterans Administration traineeships), are available to qualified students. Applications for support should be included with the application for admission to the psychology graduate program.

COURSES OF INSTRUCTION¹ (PSY)

Courses marked with † may not be elected for graduate credit by graduate degree candidates in psychology.

0198. Introductory Psychology. Cr. 4.

Three hours outside research participation required. Principles and theories of human thought and action. Majors are required to take Psychology 0302 following this course.

0301. Points of View in Modern Psychology. Cr. 4.

Prereq: PSY 0198. Major systems of psychology, including the influence of scientific thought from other disciplines and countries on models in psychology.

0302. Research in Psychology. Cr. 4.

Prereq: PSY 0198. Experimental design; analyses and interpretation of experimental findings; elementary statistical analyses; typical experimental findings.

0305. Perception. (3,4). Cr. 5.

No credit after Psychology 0306. Prereq: PSY 0198, 0302. Man's knowledge of the world around him; basic sensory processes; organization and differentiations of percepts. Laboratory investigations of basic perceptual phenomena.

0306. Readings in Perception. Cr. 4.

No credit after Psychology 0305. Prereq: PSY 0198. How man perceives the world around him. Basic perceptual phenomena. Effects of culture, experience, and personality on perception of the physical and social world.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

0307. Learning and Memory. (3,4). Cr. 5.

No credit after Psychology 0308. Prereq: PSY 0198, 0302. Theoretical and experimental literature, including sensory and motor learning; complex learning in man. Laboratory investigations of basic learning phenomena.

0308. Readings in Learning and Memory. Cr. 4.

No credit after Psychology 0307. Prereq: PSY 0198. Theoretical and experimental literature on learning and memory, including motor and sensory learning and complex learning in man.

0310. Statistical Methods in Psychology. Cr. 5.

Prereq: PSY 0198. Primarily for psychology majors, others with consent of instructor. Principles and computational methods that apply to quantitative aspects of psychological procedure; elementary correlation theory and prediction, sampling problems, tests of hypotheses, elementary test theory, interpretation of results.

0311. Differential Psychology. Cr. 4.

Prereq: PSY 0198. Individual differences: how and why people differ in their behavior, both individually and as groups; age differences, sex differences, racial differences. Content and methodology.

0317. Psychology of Music I. Cr. 4.

Prereq: PSY 0198. Open only to majors in humanities, music, or psychology. Experimental and theoretical literature dealing with physical, physiological, and psychological factors affecting creation and enjoyment of music.

0318. Psychology of Music II. Cr. 4.

Prereq: PSY 0317. Open only to music therapy majors or psychology majors with consent of instructor. Basic research concepts and experimental methods in psychology of music research. Practical training in conducting experimental research of musical behavior.

0330. Psychology of Adjustment. Cr. 4.

Prereq: PSY 0198. Processes involved in adjustment of the individual to his personal and social environment. Techniques of adjustment and the role of conflict and frustration. This course should precede any work in abnormal psychology.

0335. Theories of Personality. Cr. 4.

Prereq: PSY 0198. Evaluative review of personality theories, emphasizing neo-Freudian, social learning, cognitive, and semantic explanations of human behavior and their differential implications for psychotherapy and research.

0340. Developmental Psychology. Cr. 4.

No credit after Psychology 0540. Prereq: PSY 0198. Facts, principles, theories of psychological development, both ontogenetic and phylogenetic. Development of intelligent, emotional, perceptual, linguistic, and social behavior. Developmental trends.

0350. Survey of Industrial and Personnel Psychology. Cr. 4.

No credit after Psychology 0550. Prereq: PSY 0198. Psychology as applied to business and industry. Major areas of industrial psychology such as selection, placement, and training procedures; human factors research. Industrial social psychology with respect to motivational and organizational research and theory.

0360. Psychology of Social Behavior. Cr. 4.

Prereq: PSY 0198. Social behavior of the individual as influenced by the group. Particular attention given to social perception, motivation, and learning; attitudes and values; dynamics of social groups.

0405. Introduction to Physiological Psychology. Cr. 4.

No credit after PSY 0505. Prereq: 12 credits in psychology. Physiological mechanisms underlying behavior and mental processes; sensory-motor mechanisms; integrative action of the nervous system; neuro-physiological mechanisms involved in emotional behavior and learning.

0411. Introduction to Psychological Tests. Cr. 4.

Prereq: 8 credits in psychology. Typical tests now widely used. Problems involved in choosing appropriate tests, elementary methods of presenting test data, reliability and validity, calculation and interpretation, evaluation of test content. Test construction.

0420. Motivation, Feeling, and Emotion. Cr. 4.

Prereq: 8 credits in psychology. Experimental findings in psychological and allied fields on topics of motivation, feeling, and emotion; evaluation of classical theories and an attempt to develop a theoretical approach based on factual knowledge.

0425. Psychology of Women. Cr. 4.

Prereq: eight credits in psychology. Scientific issues relating to the psychological understanding of women: gender identity, psychobiology, mental health, achievement motivation, role conflict, psychology of career choice.

0430. Abnormal Psychology. Cr. 4.

Prereq: PSY 0330. Nature and causes of various forms of personality deviations commonly called abnormal or atypical.

0436. Racial and Cultural Factors in Human Psychology. Cr. 4.

Prereq: PSY 0330. Methods, problems, theories, and empirical data of psychology in the areas of ethnicity, race, and culture as these factors interact with personality development, cognition, pathology.

0437. Behavior Modification: Theory and Applications. Cr. 4.

Prereq: PSY 0430; prereq. or coreq: PSY 0307 or 0308. Critical examination of the behavioral approach to the theory and treatment of abnormal behavior; empirical evidence and current research literature.

0438. Human Sexuality. Cr. 4.

Prereq: PSY 0330 or 0340. Biological, psychological and socio-cultural aspects of human sexuality. Topics include anatomy and development, sexual behavior, and cultural influences.

0461. Experimenting with Social Interaction. (2,4). Cr. 4.

Prereq: PSY 0302 and 0360 or consent of instructor. Field and laboratory groups to develop techniques for designing studies investigating the impact of environments, groups and personality styles on social interaction.

0467. Environmental Psychology. Cr. 4.

Prereq: PSY 0360. Research and theoretical perspectives on the influence of environmental factors on social behavior. Topics to be announced in *Schedule of Classes*.

0490. Individual Study and Research. Cr. 2-5 (Max. 8).

Prereq: psychology major; written consent of adviser and instructor. Library or laboratory study of an advanced problem in psychology under the guidance of a faculty member. A specific statement of the nature of the project must be filed with the department chairman at registration.

0493. Field Study. Cr. 2-5 (Max. 12).

Prereq: written consent of instructor. Offered for S and U grades only. Assignment to a hospital, clinic or other agency under faculty supervision. Term paper on observations made in the field.

0495. Women's Studies III: Women in Contemporary Society. Cr. 4.

Prereq: ENG 0377 or HIS 0377 and ECO 0240 or P S 0580; research methodology course in student's major field. Research areas dealing with women; discussion and critical analysis of research methodology on women; developmental research projects dealing with women.

0496. Special Projects. Cr. 2-5 (Max. 12).

Prereq: 8 credits in psychology; written consent of instructor. Offered for S and U grades only. Departmental assignment to special projects such as tutoring introductory courses.

0499. Special Topics in Psychology. Cr. 4 (Max. 8).

Prereq: 8 credits in psychology. Topics of current interest such as: the psychology of women, environmental psychology. Reading list and syllabus developed for each topic before it is scheduled.

0505. Physiological Psychology. Cr. 4.

No credit after Psychology 0405. Prereq: 12 credits in psychology. Physiological mechanisms underlying behavior and mental processes; sensory-motor mechanisms; integrative action of the nervous system; neuro-physiological mechanisms involved in emotional behavior, learning and memory; influences of hormones on behavior.

0506. Laboratory in Physiological Psychology. (0,8). Cr. 4.

Prereq: PSY 0405 or 0505 and consent of instructor. Outline of gross neuroanatomy, basic experiments in physiological psychology utilizing brain lesions, chronic electrode implantations in small animals, and measurement of human autonomic responses.

0509. Comparative Psychology. (4,2). Cr. 5.

Prereq: 12 credits in psychology. Comparison of psychological processes in organisms ranging from simplest to most complex; emphasis on vertebrates, especially mammals.

0511. Ethology: Comparative Animal Behavior. Cr. 4.

Prereq: 12 credits in psychology. Function, biological significance, causation and evolution of species-typical behaviors: sexual, maternal, critical periods in development, aggression, social group structure, and over-population.

0540. Overview of Life Span Development. Cr. 4.

Prereq: PSY 0198. Not open to psychology majors or graduate students in psychology. No credit after Psychology 0340. Overview of life-span theory and research; comparison of existing theories of development against available evidence for stability or change in physical, intellectual and personality functioning from birth to death.

0543. Infant Behavior and Development. Cr. 4.

Prereq: 12 credits in psychology including PSY 0340 or 0540. Major theoretical positions and research relating to early cognitive, perceptual, emotional and social development.

0544. Child Behavior and Development. Cr. 4.

Prereq: 12 credits in psychology including PSY 0340 or 0540. Developmental processes in childhood; language acquisition, cognitive development, development of peer-peer interactions.

0546. Adolescent Behavior and Development. Cr. 4.

Prereq: 12 credits in psychology including PSY 0340 or 0540. Focus on the transitional nature of the adolescent period between childhood and adulthood. The effect of accelerated social change on identity, values, family relationships, and personality transmission. Generational processes and individual development.

0549. The Aging Individual in Society. Cr. 4.

Prereq: 12 credits in psychology including PSY 0340 or 0540. Biological, social, and psychological theories of aging; time associated changes in behavior; personality changes in later life; social and personal adjustment and psychopathology in later life.

10550. Selection and Placement. Cr. 4.

Prereq: PSY 0310, 0350, or written consent of instructor. Principles and techniques of psychology in relation to the problems of personnel selection and placement. Scientific appraisal of vocational aptitudes and skills by means of industrial tests, rating scales, interrogation methods. Measurement of attitudes.

10553. Organizational Psychology. Cr. 4.

Prereq: PSY 0350 or 0360, or written consent of instructor. Application of principles of social psychology to industrial phenomena. Parameters of organization and criteria of effectiveness: profitability, morale. Classical theories of organization. Theory and applications of power, interaction, conflict, and decision to industrial corporations and unions.

0554. Motivation in the World of Work. Cr. 4.

Research term paper for graduate credit. Prereq: PSY 0350 or 0360 or consent of instructor. Relationships among motivation, satisfaction, and organizational behavior. Motivational theory and research; organizational influences on motivation and satisfaction; motivational intervention; survey and evaluation.

0557. The Psychology of Human Performance. Cr. 4.

Prereq: 12 credits in psychology including PSY 0310; or consent of instructor. Application of psychological methods and principles to man-machine systems. Man's capabilities and limitations as an element in the system.

0558. Consumer Psychology. Cr. 4.

Prereq: PSY 0350 or 0360; or consent of instructor. Psychological theory and research relevant to consumer behavior. Relationships among marketing research, product design, selling and advertising. Stress on research design and sampling.

0562. Psychology of Influence. Cr. 4.

Prereq: PSY 0360 or consent of instructor. Psychological processes; emotion, motivation, cognition, leadership, communication, and behavioral contagion in the initiation and maintenance of mass behavior, including, panics and riots, social and political movements.

10563. Group Dynamics. Cr. 4.

Prereq: 12 credits in psychology including PSY 0360; or written consent of instructor. Historical and theoretical development of the "group dynamics" movement and contemporary approaches to conceptualization of small group processes. Communication and power structures, group problem solving, intra- and inter-group conflict and cooperation.

10564. Attitudes. (3,2). Cr. 4.

Prereq: 12 credits in psychology including PSY 0302 and 0360; or written consent of instructor. Nature and significance of attitudes, opinions, beliefs. Structure and functions of attitudes, on methods of change.

10565. Psychological Aspects of Leadership. Cr. 4.

Prereq: 12 credits in psychology including PSY 0360 or written consent of instructor. Problems of leadership; functions and duties of leaders, executives. Surveys and methods of study utilized to train and select leaders.

10566. (P S 0577) Psychology of Political Leadership. Cr. 4.

Prereq: PSY 0360, one other course in psychology, or consent of

instructor. Nature and theories of leadership; identification of leaders; kinds of political leaders; leadership behavior, style, and effectiveness; motivational factors in political leadership.

0567. Psychology of Interpersonal Communications. (3,1). Cr. 4.
Prereq: PSY 0360. Theoretical models of interpersonal communication; development of skills in process analysis of interpersonal conflict and communication at the verbal and non-verbal level.

0568. Social Psychology of Personality. Cr. 4.
Prereq: 12 credits in psychology. Consideration of social, structural and interpersonal determinants of personality formation, functioning and change; social learning, role theory, and cognitive approaches to personality in children and adults.

0590. Honors Directed Study. Cr. 4 (Max. 12).
Prereq: written consent of Psychology Honors Program supervisor; open only to juniors and seniors in Psychology Honors Program. Tutorial course. Student reviews the literature and writes a scholarly paper on a selected problem.

0596. Honors Problem Course. Cr. 4 (Max. 12).
Prereq: acceptance in Psychology Honors Program, written consent of faculty supervisor. Tutorial course. Independent research under the direction of a faculty member.

0597. Senior Honors Seminar I. Cr. 4.
Credit only on satisfactory completion of Psychology 0598. Prereq: psychology major, 12 credits in psychology, senior standing, 3.0 h.p.a. Philosophical issues in psychological concepts and theories; logic of research and theory construction. Review of fundamental concepts in the light of these logical structures. Design of an individual research project.

0598. Senior Honors Seminar II. Cr. 4.
Prereq: PSY 0597. Small research project; class meetings devoted to discussion of the research designs and results.

0600. History of Psychology. Cr. 4.
Prereq: 16 credits in psychology including one 0500 level course; or written consent of instructor. Origin and development of psychology as subject matter and as science.

0606. Sensory Processes. (4,2). Cr. 5.
Prereq: 16 credits in psychology including one 0500 level course; or written consent of instructor. Advanced study of physiological mechanisms and psychological processes involved in sensory and perceptual experiences. Some laboratory work.

0607. Physiological Bases of Motivation, Learning and Memory. Cr. 4.
Prereq: PSY 0405 or 0505 or consent of instructor. Recent research on brain stimulation, brain lesions and biochemical influences which affect human and animal behavior.

0609. Higher Mental Processes. (4,2). Cr. 4.
Prereq: 16 credits in psychology including one 0500 level course; PSY 0302, and 0305 or 0307; or written consent of instructor. Distinctiveness of human thought processes considered from theoretical and experimental viewpoints. Comparative and developmental approach; focus on problems and issues.

0612. Laboratory in Ethological Methods. (1,6). Cr. 4.
Prereq: PSY 0511 or consent of instructor. Ethological methods of behavior study; consideration of different observational techniques. Study of children, adults and small animals in the laboratory and zoo.

0615. Introduction to Mathematical Psychology. Cr. 4.
Prereq: 16 credits in psychology including PSY 0310 and one 0500 level course; or written consent of instructor. Use of quantitative theory in psychological research and theory construction. Mathematical models. The Markov models in learning.

0616. Use of Computers in Psychological Research. Cr. 4.
Prereq: 16 credits in psychology including PSY 0310 and one 0500 level course, or written consent of instructor. Computer applications in current psychological research. Not a course in computer programming; while prior training in this area is recommended, it is not required.

0628. Psychoanalytic Theory. Cr. 4.
Prereq: 16 credits in psychology including one 0500 level course and PSY 0430. For students who have had considerable work in psychology and for psychology majors. Facts and theories as developed by Freud and his students.

0635. Assessment of Personality. Cr. 4.
Prereq: 16 credits in psychology including one 0500 level course and PSY 0430. Methods and accomplishments. Theory, development, results of assessment methods rather than on techniques of administering them.

0643. Psychological Problems in Development in Childhood. Cr. 4.
Prereq: PSY 0340 or 0540. Introduction to the relation between normal and atypical development during childhood; common behavioral disorders, such as: aggression, anxiety, dependency, and school phobia.

0649. Developmental Psychology of Death, Dying and Lethal Behavior. (3,1). Cr. 4.
Prereq: PSY 0340, 0430, or consent of instructor. Changing relationship to death and finitude throughout the life-cycle: development and function of death cognitions, factors predisposing toward suicide and other premature deaths at various age levels, and the dying process.

0656. Psychology of Union-Management Relations. Cr. 4.
Prereq: 16 credits in psychology including PSY 0350 or 0360. Perceptual and motivational factors influencing behavior of workers, executives, union officers. Psychological factors in strikes; principles relevant to union-management cooperation.

0664. Social Perception. Cr. 4.
Prereq: 16 credits in psychology including PSY 0360 or SOC 0460; or written consent of instructor. Characteristics of the perceiver; the observed and interactional processes; relation of perceptual, cognitive, and personality theory to social perception; the nature of cognitive work; developmental considerations.

0665. Justice in Social Relationships. Cr. 4.
Prereq: 16 credits in psychology including PSY 0360 or SOC 0460; or written consent of instructor. Fairness and equity as determinants of the distribution of rewards and resources in groups and organizations. Examination of the perception and behavior of persons who allocate resources and persons who receive them.

0666. Political Psychology (PS 0666). Cr. 4.
Prereq: PSY 0360 and either PSY 0310 or 0461. Cognitive and emotional factors — loyalty, aggression, anxiety, leadership, propaganda — as they affect domestic and international politics. Biographies and public opinion data.

0681. (CSC 0681) Human Information Processing. Cr. 4.
Prereq: MAT 0221 or 0580; graduate standing or consent of instructor. Mathematical models of human memory; use of informa-

tion theory in studying human processing; human decision-making and the effect of information on human opinions.

0706. Psychobiology of Sensory Coding. Cr. 4.

Prereq: PSY 0606 and either PSY 0505 or consent of instructor. Correlation of adequate stimulus; transducer, and modality-specific sensations; identification of neural patterns which underlie sensation in all modalities. Unified theory of sensory awareness.

0708. Perception and Its Issues. Cr. 4.

Prereq: admission to graduate program in psychology. Current theories and issues examined, analyzed, evaluated. Relationship of theory to research.

0709. Theories of Learning. Cr. 4.

Prereq: admission to graduate program in psychology. Systematic examination of learning theories.

0710. Conceptual Behavior. Cr. 4.

Prereq: admission to graduate program in psychology; PSY 0609 or written consent of instructor. History, theory and recent research in the area of concept development and concept utilization.

0711. Advanced Comparative Psychology. Cr. 4.

Prereq: PSY 0509 or equiv.; or consent of instructor; admission to graduate program in psychology. Specific problems: role of behavior in evolution, behavior genetics, sensory capacities, learning capacities, sexual behavior, parental and filial behavior, social behavior, the significance of primate social behavior for human evolution.

0712. Biological Basis of Behavior. Cr. 4.

Prereq: admission to the graduate program in psychology or consent of instructor. Major literature relating the anatomy of the nervous system to psychological processes.

0713. Research Methods and Ethical Issues in Experimentation. Cr. 4.

Credit only on completion of 4 credits in Psychology 0899. Required of all cognitive process and physiological-comparative-sensory majors. Ethics in human and animal experimentation. Research design and criterion. Development of independent research project of master's thesis quality.

0714. Psychophysical and Scaling Methods. (3,2). Cr. 4.

Prereq: PSY 0302 and 0310; or written consent of instructor. Major psychophysical methods; data analysis and written reports.

0715. Quantitative Methods I: Statistical Analysis. (2,2). Cr. 4.

Prereq: PSY 0310. Basic statistical methods, emphasizing inferential statistics; Chi square, *t*, *F*, linear regression and correlation; selected non-parametric techniques.

0716. Quantitative Methods II: Experimental Design; Analysis of Variance. Cr. 4.

Prereq: PSY 0715. One-way analysis of variance; factorial randomized block and selected mixed designs, covariance, transformations.

0717. Quantitative Methods III: Measurement. Cr. 4.

Prereq: PSY 0716. Selected multivariate techniques: multiple regression, discriminant function, factor analysis. Test theory; reliability, validity, problems in selection. Test construction: scaling.

0720. Psychological Assessment I. Cr. 4.

Prereq: admission to Ph.D. program in clinical psychology, or consent of instructor. Orientation to clinical measurement — an examination of psychometric tests emphasizing reliability, validity

and clinical vs. statistical prediction. Individual supervision in intellectual and personality assessment.

0721. Psychological Assessment II. Cr. 4.

Prereq: PSY 0720. Continuation of Psychology 0720. Interviewing and introduction to theories and techniques in behavioral assessment; childhood assessment.

0722. Psychological Assessment III. Cr. 4.

Prereq: PSY 0721. Continuation of Psychology 0721. Projective tests, theory and practice.

0723. Practicum in Clinical Procedures. Cr. 1-8.

Prereq: consent of director of clinical psychology training program. Offered for S and U grades only. Clerkship in one of the clinics cooperating with the University, emphasizing psychological assessment.

0724. Ethical Issues in Clinical Psychology. Cr. 1.

Prereq: admission to clinical program. Required of all clinical students. Offered for S and U grades only. Discussion of crucial problems in various phases of clinical psychology, research, practice, and teaching.

0725. Theory of Personality. Cr. 4.

Prereq: PSY 0430, admission to graduate program in psychology. Review of theories of personality organization in attempt to build a workable theory of personality from the psychological point of view.

0730. Psychopathology. Cr. 4.

Prereq: PSY 0430, admission to graduate program in psychology. The basic psychological concepts of psychopathology; illustrations of the concepts with the clinical observations they are devised to explain; the relevance of the concepts to clinical practice.

0732. Psychotherapy: Behavior Modification. Cr. 4.

Prereq: PSY 0730, 0735 and consent of instructor. Various techniques and the theory and research underlying them.

0733. Clinical Neuropsychology. Cr. 4.

Prereq: PSY 0505; admission to graduate program in psychology or written consent of instructor. History, research methodologies, current theories regarding brain, neural functioning and dysfunctioning.

0734. Psychophysiology of Emotion. Cr. 3.

Prereq: PSY 0302, 0310; and 0430 or 0505. Research seminar including review of the relevant literature and an experimental study. Theories of psychophysiology, design of experiments, specific working hypotheses.

0735. Experimental Psychodynamics I. Cr. 4.

Prereq: PSY 0730. Open only to Ph.D. students in psychology or consent of instructor. Research in dynamic psychology; experimental methodology. Role of motivation, frustration, conflict, learning in the genesis of mechanisms. Independent experimentation.

0736. Experimental Psychodynamics II. Cr. 4.

Prereq: PSY 0735 or written consent of instructor. Continuation of Psychology 0735. Emphasis on the genesis and treatment of behavior disorders. Independent experiments by students.

0737. Therapeutic Interventions I: Introduction and Theories. Cr. 4.

Prereq: PSY 0730 and admission to Ph.D. program in clinical psychology or consent of instructor. Critical issues in psychotherapy and a survey of important systems; various theoretical approaches developed and therapeutically role-played.

0738. Therapeutic Interventions II: Processes, Techniques, Research. Cr. 4.

Prereq: PSY 0737. Application of psychological treatment methods taught in a context which emphasizes the research foundations of adequate therapy.

0739. Therapeutic Interventions III: Applications and Innovations. Cr. 4.

Prereq: PSY 0738. Application and development of behavioral methods and therapeutic intervention procedures to problems of individuals, families, groups and social institutions; conducting and preparation of theoretical analysis of a therapeutic case intervention.

0740. Introduction to Life-Span Developmental Psychology. Cr. 4.

Prereq: admission to graduate program in psychology, written consent of instructor. Theory, methods and selected content areas: cognitive and social development as they relate to the entire life cycle.

0743. Early Human Development. Cr. 4.

Prereq: PSY 0740 or written consent of instructor. Seminar on infancy and early child development; achievement of self-regulatory processes; comparative studies.

0744. Development of Intelligence. Cr. 4.

Prereq: PSY 0740 or consent of instructor; open only to graduate students in psychology. Piaget's theory of intellectual development from infancy through adolescence and review of relevant research.

0745. Psychology of Social Development. Cr. 4.

Prereq: PSY 0740 or consent of instructor. Progress in theory and research techniques in study of development of social behavior; focal issues including interactive ecological, cultural and socio-biological contexts for understanding social development.

0746. Developmental Psychology of Adolescence. Cr. 4.

Prereq: PSY 0740 or written consent of instructor. The adolescent years from the perspective of life-span developmental psychology with emphasis on integrative processes.

0747. Research Strategies for Developmental Psychology, Cr. 4.

Prereq: PSY 0717 and 0740 or consent of instructor. Methodology in longitudinal, cross-sectional and sequential research on developmental processes; appropriate statistics and practical problems.

0748. Psychological Development in the Adult Years. Cr. 4.

Prereq: PSY 0740 or consent of instructor. A life-cycle approach to the adult years, covering biological, social, and psychological changes with age. Lectures, discussion, and individual research projects on salient issues in adult development.

0749. Developmental Psychology of Later Life. Cr. 4.

Prereq: PSY 0740 or written consent of instructor. The later years of human life from the perspective of developmental psychology, with attention to viewpoints in biology, sociology. Particular emphases are placed on personality structure and phenomenological life, and the possibilities of continuous psychological development.

0750. Research Methods in Industrial Psychology. Cr. 4.

Prereq: PSY 0715. Analysis of methodology and research design problems in the field of industrial psychology; discussion of professional and ethical problems of this field.

0751. Research Methods in Industrial Criterion Development. Cr. 4.

Prereq. or coreq: PSY 0717 and 0750. Criteria of job performance: nature and kinds of criteria, performance ratings. Problems

of collecting reliable criterion data; need for multiple criteria on most jobs; techniques for improving criteria.

0752. Theory and Research in Selection and Placement. Cr. 4.

Prereq: PSY 0750 and 0751. Principles in development of selection procedures for industry, problems in matching of human characteristics and job requirements; methods of determining reliability and validity.

0755. Psychological Analysis of Organizations. Cr. 4.

Required of all first-year graduate students in industrial and organizational program. Psychological concepts of conformity, role, leadership, communication conflict, decision making and bargaining in organizational behavior.

0756. Theory and Research on Leadership and Executive Development. Cr. 4.

Prereq: PSY 0750. Selected leadership research studies; theories relating to leadership; principles of training and development.

0757. Theory and Research on Industrial Motivation and Morale. Cr. 4.

Prereq: PSY 0750 and 0762. Meaning of motivation and incentive as used in industry; research methods for study of motivation, job satisfaction, and morale; research data and interpretations in theoretical frameworks.

0758. Theories and Issues in Organizational Change and Development. Cr. 4.

Prereq: written consent of instructor. Presentations of the major theoretical approaches and frameworks in the area of organization development; critical evaluations on the relative effectiveness of organizational interventions based on these approaches; relevant conceptual, professional, ethical and methodological issues.

0759. Advanced Psychology of Human Performance. Cr. 4.

Prereq: PSY 0715 and 0750 or written consent of instructor. Man's role in man-machine systems. Techniques and technology designed to develop and assist the capabilities of man in a man-machine system. Environmental and organismic variables as they affect system operation.

0761. Research Seminar in Social Psychology. Cr. 4.

Prereq: PSY 0715 and 0762. Research problems and methodology in social psychology, touching on field research, laboratory research, and attitude measurement techniques.

0762. Theories of Social Psychology. Cr. 4.

Prereq: PSY 0360 or equiv. Socio-psychological theories considered essential to understanding the influence of the group on the individual, and of the individual on the group.

0763. Group Processes. Cr. 4.

Prereq: PSY 0762 or equiv. or consent of instructor. Contemporary approaches to research on social influence processes, power structures, conformity processes, and problem solving in the small group; methodology.

0765. Social Conflict and Social Change. Cr. 4.

Prereq: PSY 0762 or equiv. or consent of instructor. Strategies for producing, and consequences of, change. Topics could include: effects of change on the individual; the collection and use of data as a strategy for the production of change; socio-technical intervention strategies; conflict as a change strategy.

0767. Social Cognition and Social Influence. Cr. 4.

Prereq: PSY 0762 or equiv. or consent of instructor. Attitude theory and attitude change, interpersonal perception and interpersonal attraction, social motivation, and conformity processes.

0769. Socialization Theory and Personality. Cr. 4.

Prereq: PSY 0762 or equiv. or consent of instructor. The social-psychological aspects of personality; the development of personality, family structures, and specific psychological processes (such as social learning and moral development) which occur during socialization.

0770. Psychology of Language. Cr. 4.

Prereq: written consent of instructor. Classical and contemporary theory and research on the psychological aspects of language. Phylogenetic, ontogenetic, pathological, cross-cultural, cognitive, and structural aspects.

0790. Directed Study. Cr. 1-12 (Max. 12).

Prereq: written consent of instructor, adviser and graduate officer. For students who wish to delve further into technical literature of some problem which has been systematically reviewed in one of preceding courses. Intensive and systematic reading of original literature (particularly journals) dealing with topics or problems.

0795. Research Problems. Cr. 1-6 (Max. 8).

Prereq: written consent of instructor and adviser. Original research under direction of departmental staff. Final written report and examination.

0799. Master's Essay Direction. Cr. 3-4.

Prereq: candidate for M.A. in teaching psychology and consent of adviser.

0802. Advanced Study of Psychological Systems. Cr. 4.

Prereq: PSY 0301 or 20 credits in psychology. Recent systems; scope of interest, methodology, particular problems.

0804. Seminar in Biochemistry and Behavior. Cr. 4.

Prereq: written consent of instructor. Influence of drugs, hormones, and endogenous chemical processes on behavior; current research in endocrinology, neuroendocrinology and neuropsychopharmacology.

0806. Advanced Physiological Psychology I. Cr. 4.

Credit only on completion of Psychology 0807. Prereq: PSY 0405 or 0505, written consent of instructor. Physiological correlates of behavior. Contemporary literature and techniques used in psychophysiological research in areas of learning, motivation, perception.

0807. Advanced Physiological Psychology II. Cr. 4.

Prereq: PSY 0806. Continuation of Psychology 0806.

0809. Instrumental Learning and Classical Conditioning. Cr. 4.

Prereq: PSY 0709. Experimental phenomena and their significance for learning theory.

0810. Verbal Learning. Cr. 4.

Prereq: PSY 0709 or written consent of instructor. Empirical facts and theoretical directions of current research.

0815. Multivariate Analysis in Psychology. Cr. 4.

Prereq: PSY 0717 or consent of instructor. Factor analysis; centroid and principal axis methods of factoring; orthogonal and oblique factor solutions; factor models of Spearman, Thurstone and Guttman; design of factor experiments. Linear discriminant function. Latent structure analysis. Profile analysis.

0816. Advanced Experimental Design. Cr. 4.

Prereq: PSY 0717 or consent of instructor. Latin and Graeco-Latin square designs. Mixed designs. Incomplete block designs. Orthogonal polynomials. Trend analysis. Curve fitting.

0818. Mathematical Models of Cognitive Processes. Cr. 4.

Prereq: PSY 0616, 0709 and written consent of instructor. Models

in learning, problem solving, information processes, and judgment and choice. Current status of quantitative theory in the study of cognitive processes.

0833. Advanced Clinical Neuropsychology. Cr. 4.

Prereq: PSY 0722 and 0733. The etiology, symptomatology, pathogenic process and treatment of brain disorders in the classes of traumatic, infectious, degenerative, vascular, neoplastic, and epileptic disorders; neuropsychologic evaluations of selected cases.

0835. Community Psychology. Cr. 4.

Prereq: admission to graduate program in psychology. Lecture and readings to introduce graduate students to the field of community psychology.

0839. Therapeutic Intervention Practicum. Cr. 1-8 (Max. 16).

Prereq: PSY 0739. Offered for S and U grades only. Weekly group case conferences supervised by qualified therapists; video- and tape-recorded case sessions presented to supervisor in individual case conferences.

0840. Current Issues in Developmental Psychology.

Cr. 4 (Max. 12).

Prereq: written consent of instructor. Integrative seminar in current theoretical and empirical issues.

0850. Seminar in Industrial Psychology. Cr. 2-4 (Max. 8).

Prereq: consent of instructor. For industrial psychology students. Current topics in industrial psychology. Content varies.

0860. Seminar in Experimental Social Psychology. Cr. 4

(Max. 12).

Prereq: PSY 0762 or equiv. or consent of instructor. Review and evaluation of the literature on some current topic of research or theoretical concern.

0864. Seminar in Applied and Interdisciplinary Social Psychology. Cr. 4.

Prereq: PSY 0762 or equiv. or consent of instructor. Applications of social psychological theory and research on environmental, educational, economic, political, legal, and community settings. Relationships of social psychology to allied disciplines, such as: sociology, economics, history, anthropology and others.

0865. Seminar in Advanced Topics in Social Psychological Research. Cr. 4 (Max. 8).

Prereq: PSY 0762 or equiv. or consent of instructor. Field and survey techniques, unobtrusive measures, computer simulation, advanced data analysis, group observation techniques.

0867. Experimental Analysis of Behavior. Cr. 4.

Prereq: PSY 0709 and 0809. Research in the experimental analysis of aversive control and stimulus control of behavior; applications to the management of human behavior.

0868. Seminar in Physiological Psychology. Cr. 4 (Max. 12).

Prereq: written consent of instructor. Critical examination of contemporary research on selected topics concerned with relationships between physiological mechanisms and behavior.

0869. Seminar in Comparative Psychology. Cr. 4 (Max. 12).

Prereq: admission to graduate program in psychology or consent of instructor. In-depth study of contemporary research interest in comparative psychology. Maternal behavior, primate social behavior, comparative learning abilities and human ethology.

0870. Seminar in Motivation Theory and Research. Cr. 4 (Max. 8).

Prereq: PSY 0420; written consent of instructor. Review and evaluation of developments within some principal segments of current literature on motivation. Segments will vary.

0872. Seminar in Cognitive Processes. Cr. 4 (Max. 12).

Prereq: written consent of instructor. Literature on concept formation, problem solving, thinking, aphasia, other language functions. Content varies.

0874. Seminar in Psychological Measurement and Statistics. Cr. 4 (Max. 12).

Prereq: PSY 0717. Problems in scaling, statistical analysis of learning data, multivariate analysis, mathematical models in psychology, related topics. Content varies.

0876. Seminar in Clinical Psychology (CRJ 0876). Cr. 1-4 (Max. 20 for psychology majors).

Prereq: written consent of instructor. Survey of current research. Topics to be announced in *Schedule of Classes*.

0878. Seminar in Sensory Processes. Cr. 4 (Max. 12).

Prereq: PSY 0606 and written consent of instructor. Current research in some specific area of sensory processes may include physiological basis of vision, or of audition; use of animals in sensory research; signal detection; auditory and visual psychophysics.

0899. Master's Thesis Research and Direction. Cr. 2-12 (12 required).

Prereq: consent of adviser.

0999. Doctoral Dissertation Research and Direction. Cr. 2-16.

Prereq: consent of doctoral adviser.



ROMANCE AND GERMANIC LANGUAGES AND LITERATURES

Office: 487 Manoogian Hall

Chairman: Marvin S. Schindler

Academic Services Officer: Mary Hoffiz

PROFESSORS

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Vladimir Bezdek, Achim Bonawitz, Andrea di Tommaso, Louise M. Jefferson, Louis Kibler, Charlotte Lemke, Hermann D. Poster, Sol Rossman, Gary E. Scavnicky, Bernard Valentini (Emeritus), Richard Vernier, A. Monica Wagner

ASSISTANT PROFESSORS

Esther Azzario, Erhard Dabringhaus, Uwe K. Faulhaber, Michael J. Giordano, Armando D. Grant, Ursula Haas, Leonor E. McAlpine, Jacqueline Morton, †Earl A. Resweber (Emeritus), Maria C. Roth, Donald E. Schurknight, Donald C. Spinelli

INSTRUCTORS

Louis Belby, Beatrix Fuzet-Przekop, Edward Messinger, Duane Rhoades, Mary Ricciardi, Steven M. Taylor

DIRECTOR OF FOREIGN LANGUAGE LABORATORIES

Farouk Alameddine

DEGREE PROGRAMS

Bachelor of Arts — with a major in French, German, Italian, or Spanish

Master of Arts — with a major in French, German, Italian, or Spanish

Doctor of Philosophy — with a major in modern languages

† Deceased

FOREIGN LANGUAGE GROUP REQUIREMENT

(See page 230).

The student may satisfy the requirement by passing the first four courses in one language or by a special placement examination.

Courses — The student should elect his chosen language as early as possible and continue it without interruption. The courses numbered 0101, 0102, 0103 and 0201 are essentially a continuum designed to give the student command of the basic elements of the language. The "target" language is the preferred language of the classroom. There are several hour examinations in each course; group finals are given. Most of the structural and textual materials are recorded on tape by speakers of native fluency and are available to students in the Foreign Language Laboratory. The learning of a foreign language requires: (a) regular class attendance; (b) class participation; (c) two hours of concentrated study for each hour in class; (d) laboratory attendance. Frequent short visits to the laboratory are preferable to occasional long cramming sessions.

Placement — Students who wish to continue the study of a language begun in high school or in another college must take a placement test before registering. Examinations are scheduled by appointment at the Testing and Evaluation office, 343 Mackenzie Hall. A small fee is charged. Students who fail to take the placement test will not be permitted to elect any course in that language. With a normal placement score, the student should not expect to repeat previous work (one high school unit equals four credits). However, students with one high school unit whose placement indicates need for review may elect 0101 for credit; students with three high school units who need review may elect 0150 for credit. Students who achieve advanced placement may earn credit by examination for the courses beyond which they have placed. Students with a sufficiently high placement score will be deemed to have satisfied the Foreign Language Group Requirement.

HUMANITIES GROUP REQUIREMENT

(See page 231).

Two types of courses offered in the department satisfy the Humanities Group Requirement:

Courses in English Translation — A variety of courses dealing with the culture, the literature or the film of the French, German, Italian and Spanish-speaking nations, conducted in English with all readings in English. These courses are open to all students with no prerequisites.

Courses in the Foreign Language — Literature courses in French, German, Italian and Spanish with readings in the foreign language. Courses regularly open to freshmen and sophomores are numbered 0260, 0360, 0361, 0362, 0363, 0460 and 0470. Literature courses primarily designed for juniors and seniors are on the 0600 level. See individual course listings for prerequisites.

BACHELOR OF ARTS

Students who wish to major in one of the programs offered by the department should consult with the adviser for that program as soon as possible. The department secretary will arrange an interview with the appropriate adviser upon the student's request.

Combined Curriculum for Secondary Teaching — Students who are preparing to teach French, German, Italian, or Spanish in the secondary schools and who wish to obtain a B.A. degree with a major in one of these languages must complete the appropriate major as defined below. Information regarding this curriculum is on page 239.

Cognate Courses — All majors in this department are required to take a minimum of two courses in English or American literature or in the literature of a country other than that of their major language, including those offered in this department in English translation. (For a listing of the latter offerings, see page 399.) Majors are expected to consult with their major advisers concerning suitable cognate courses. They are urged to take as much work as possible in the literatures of other languages, both ancient and modern, as well as in history, philosophy, linguistics, art, and music.

Major Requirements in French — A major in French must take all French courses on the 0300 level, French 0510 or 0511, 0520, 0530, 0640, and sixteen credits in literature courses on the 0600 level representing three of the following groups and four if possible:

Group A — Sixteenth Century

Group B — Seventeenth Century

Group C — Eighteenth Century

Group D — Nineteenth Century

Group E — Poetry from Baudelaire to the Present, Twentieth Century Novel and Theater.

Group F — French Civilization

French majors are required to take at least one course in philosophy (normally Philosophy 0101).

Major Requirements in German — A major in German must take German 0310 or 0320, 0360, one course in literary genre (0361 or 0362), 0460, 0510 or 0511, 0655 and four courses in literature on the 0600 level. German majors are required to take History 0564 or 0565.

Junior Year in Munich or Freiburg — With the approval of the department, majors may take their junior year abroad in any one of the supervised intercollegiate junior year programs. (See Study Abroad, page 228.)

Major Requirements in Italian — A major in Italian must take Italian 0310, 0360, 0361 and 0362, one course at the 0500 level, 0661, one course from those numbered 0665 through 0667, two courses from those numbered 0680 through 0689 and two additional electives, one at the 0600 level and the other at either the 0500 or 0600 level. Italian majors are

required to take one of the following: Art 0551, History 0527 or 0538, Italian 0271, Philosophy 0203, 0370.

Major Requirements in Spanish— A major in Spanish must take Spanish 0460 and 0470, one of which must be taken by the end of the student's first quarter as a major, and the other by the end of his first year as a major. Spanish 0310, 0510 or 0511, 0520, 0530 or 0540, and 0645 or 0646 are also required. The student must earn twelve credits in period courses numbered 0660 to 0667, to be distributed as follows: four from 0660, 0661, 0662; four from 0663, 0664, 0665; four from 0666, 0667. Finally he must earn eight credits in courses from Spanish 0668 to 0689.

MASTER OF ARTS

Plan A— Thirty-six credits in course work plus a thesis.

Plan B— Forty-four credits in course work plus an essay.

Plan C— Forty-eight credits in course work.

Students envisaging a teaching career on the college level or intending to continue to the doctorate may elect either Plan A or Plan B. Plan C, at present available only in French, is intended primarily for those interested in teaching on the elementary and secondary school levels. Plan C participants should keep in mind that if at a later date they decide to go on to a doctorate, they may find themselves lacking in entrance requirements and some of the work they have done may not be applicable to the doctoral program.

Admission to any of the programs must be approved by the appropriate graduate adviser. The applicant must have an adequate undergraduate major or the equivalent in the area in which he wishes to take his degree. He should also have reasonable proficiency in speaking and writing the language which constitutes his major field of interest. Students in French, Italian and Spanish under Plans A or B should have or plan to acquire a working knowledge of Latin.

Candidacy must be established by the time sixteen credits have been earned.

Degree Requirements— All courses must be approved by the student's major adviser.

Under Plans A and B:

1. Candidates in French are required to take French 0690, 0730 and 0751. No more than six credits in work on the 0500 level may be counted toward the degree. Candidates may choose to concentrate in either French literature or French philology.
2. Candidates in Spanish are required to take Spanish 0640, 0730 and 0740.
3. Candidates in German are required to take German 0751 and 0752.
4. Candidates in Italian are required to take Italian 0730. No more than six credits in work on the 0500 level may be counted toward the degree.

5. At least five weeks prior to the time the degree is to be granted, all candidates must pass a comprehensive oral examination.

Under Plan C:

(This plan is available to French candidates only.)

1. French 0510, 0520, 0530, 0640, 0645, and 0720 are required. However, any part of this requirement may be waived by the graduate adviser if he judges it has been properly satisfied in earlier study.
2. A minimum of sixteen credits of French literature in courses on the 0600 level or higher is also required and at least four of these credits must be in courses numbered above 0800.
3. With the consent of the candidate's adviser, up to twelve credits may be elected in cognate fields.
4. On completion of their course work, candidates will be required to demonstrate a superior command of written and oral French. A final written and oral examination will be given to test their knowledge of French language and culture and those aspects of French literature in which they have had course work.

DOCTOR OF PHILOSOPHY

With a major in modern languages

See the Graduate Division section of this bulletin and the "Graduate Academic Regulations" section for the College of Liberal Arts.

Candidates may fulfill the requirements for the degree of Doctor of Philosophy with a major specialization in one modern language and a minor in another. Major programs are offered in French, German, and Spanish and minor programs in French, German, Italian, Russian, and Spanish.

Admission— The application for admission and transcripts of all previous college work should be filed in the Graduate Division at least three months in advance of the time the applicant plans to register. A letter giving information on his educational background, experience, objectives, oral fluency in the language of proposed major concentration and other data of interest to an evaluating committee should be sent by the applicant as soon as possible to the Chairman of the Department of Romance and Germanic Languages and Literatures.

Prerequisites are as follows:

1. Bachelor of Arts degree in the language of the proposed major field of concentration.
2. Approximately thirty credits of studies in the language of the proposed minor field of concentration.
3. A working knowledge of Latin. This requirement may be waived for students whose field of major concentration is German.

4. The doctoral candidate must pass a Ph.D. reading examination in one language other than those of his major and minor fields. The students whose major and minor are both in the Romance field must take this examination in a non-Romance language approved by the department.

Course Requirements—A minimum of fifty-four credits on the graduate level in the field of major concentration, twenty-four credits in one minor field, and twelve credits in cognate courses. The total program must include forty-five credits (including dissertation direction) at the 0700 level or above. Course requirements for M.A., plans A and B, apply in major concentration.

Qualifying Examinations—Within a reasonable time after the completion of all course work, students are required to pass extensive examinations, both written and oral, in the major and minor fields. Later, after the dissertation has been completed, a final oral presentation and defense of it is also required.

COURSES OF INSTRUCTION¹

Courses offered in English

No knowledge of a foreign language is presumed or required for the following courses, which are conducted in English with all readings in English and which may be applied toward fulfillment of the Humanities Group Requirement. These courses have no prerequisites. They may NOT be taken to fulfill the Foreign Language Group Requirement, and they will not count toward a major in the foreign language from which the translations are taken.

European Literature in English Translation (EUR)

0279. Anguish and Commitment: European Existentialist Literature. Cr. 4.

A team-taught interdisciplinary study, in English of representative works by European existentialist writers: Dostoevsky, Rilke, Kafka, Moravia, Sartre and Camus. Lecture and Discussion.

French in English Translation (FRE)

0272. Social Relevance: French Literature of Dissent. Cr. 4. Literature of protest from the sixteenth century to the present arranged topically: religious freedom, civil liberty, social reform, education, pacifism, anti-semitism.

0273. French Literature I: Masterpieces of the Middle Ages and Renaissance. Cr. 4.

Selected readings of major genres from representative texts; background, development and significance of French literature for non-majors.

0274. French Literature II: Masterpieces of the Seventeenth and Eighteenth Centuries. Cr. 4.

A continuation of French 0273.

0275. French Literature III: Masterpieces of the Nineteenth and Twentieth Centuries. Cr. 4.

A continuation of French 0274.

0278. French Writers of the Enlightenment. Cr. 4.

Major works of Montesquieu, Voltaire, Diderot and Rousseau. Emphasis on those seminal writings which have shaped modern political and social institutions.

0281. Modern French Novel. Cr. 4.

The novel from Alain-Fournier to Robbe-Grillet; primary and secondary source readings, oral reports, and periodic essays.

0282. Modern French Theatre. Cr. 4.

Modern drama from Jarry to Arrabal; primary and secondary source readings, oral reports, periodic essays.

0576. Rabelais. Cr. 4.

An introduction to the art, the learning, and the joy of French Renaissance through the famous five books of Dr. Francois Rabelais.

German in English Translation (GER)

0170. Introduction to Norse Mythology. Cr. 4.

Typical myths and their relation to the religion, customs, ethics, art and literature of the Germanic tribes to the end of the Viking Age.

0271. Survey of Germanic Culture I. Cr. 4.

No credit after German 0270. Development of Germanic people from their origin to 1835; their major contributions of cultural significance to the Western world.

0272. Survey of Germanic Culture II. Cr. 4.

No credit after German 0270. Development of the Germanic people from 1835 to the present; the Nazi period and World War II.

0278. The Age of Goethe. Cr. 4.

Important works of Goethe and Schiller.

0281. Modern German Novel. Cr. 4.

Major German prose writers since 1900. Emphasis is placed upon Kafka, Hesse, Mann, but other writers and trends will be covered in lectures.

0282. Modern German Drama. Cr. 4.

Major trends from 1945 to the present. Emphasis on such authors as Bertolt Brecht, Max Frisch, Friedrich Duerrenmatt, Peter Weiss, Rolf Hochhuth.

0283. German Expressionism. Cr. 4.

A multi-media approach to the German Expressionist Movement, giving a more complete understanding than literature alone would provide.

Italian in English Translation (ITA)

0171. The Culture of Renaissance Italy. Cr. 4.

An introduction to the arts, philosophical, religious and political thought, magic and astrology in Renaissance Italy.

0172. Culture and Counter-Culture in Fascist Italy. Cr. 4.

The influence of Fascism on personal liberties, the media, literature and the arts in Italy, and the struggle waged in opposition.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

0275. Medieval Italian Literature. Cr. 4.

Provençal and Italian love lyric through Petrarch; Dante's *Vita Nuova*; Boccaccio's *Decameron*; St. Francis and other religious poets of the period.

0276. Italian Literature of the Renaissance. Cr. 4.

Humanism and historical background. Petrarch, Boccaccio, Lorenzo, Poliziano, Machiavelli, Ariosto, Tasso.

0281. Modern Italian Novel. Cr. 4.

Writers who have contributed to the development of Western literature: Verga, Pirandello, Moravia; Verismo, Futurismo, Neorealismo.

0282. Modern Italian Theatre. Cr. 4.

The Italian theatre from D'Annunzio to the present; contribution of Pirandello to Western drama.

0313. Introduction to the Italian Cinema. Cr. 4.

History of Italian cinema from 1895 to the present. Neorealism and post-neorealist trends, including analysis of the work of major directors, in context of Italian political and intellectual life. Knowledge of Italian is not required. (Former ITA 0513)

0314. Aspects of Italian Cinema I. Cr. 4.

Materials fee \$10. No credit after Italian 0513. Neorealism, its literary, theoretical and filmic sources; more recent works of political and socio-economic inspiration. Knowledge of Italian not required.

0315. Aspects of Italian Cinema II. Cr. 4.

Materials fee \$10. No credit after Italian 0513. Major developments in the Italian cinema after neorealism; important directors, principal genres and significant trends. Knowledge of Italian not required.

0333. Dante's Divine Comedy. Cr. 4.

The poem as a synthesis of medieval culture, its scholastic qualities, its structure, poetic value, its relevance to Western literature. (Former ITA 0575)

0514. Studies in Italian Cinema. Cr. 4 (Max. 8).

Materials fee \$10. Topics of investigation into the history of Italian cinema, including specific trends, evolution of genres, development of individual directors; interplay of aesthetics and political theory; reciprocal influences of film and literature; critical approaches to film. Knowledge of Italian not required.

Spanish in English Translation (SPA)

0277. Spanish Literature of the Sixteenth and Seventeenth Centuries. Cr. 4.

The *Celestina* and the transition from the Middle Ages to the Renaissance. Garcilaso and the Italianate lyric. *Lazarillo de Tormes* and the later picaresque. Gongora and *culteranismo*. Golden Age drama: Lope de Vega, Calderon.

0281. Modern Spanish Prose. Cr. 4.

Representative works by authors such as Galdos, Unamuno, Ortega y Gasset, Blasco Ibanez, Cela Goytisolo, Delibes.

0282. Modern Spanish Theatre. Cr. 4.

Selected plays of Echegaray, Tamayo, Benavente, Garcia Lorca, Buero Vallejo.

0286. Modern Spanish American Literature. Cr. 4.

Readings from leading prose writers (Asturias, Carpentier, Cortazar, Borges); poets (Borges, Neruda, Vallejo, Dario); essayists (Rodo, Marti, Sarmiento).

0287. Jorge Luis Borges. Cr. 4.

Narrative, essay and lyric forms of Borges' work studied in English translation.

0577. Cervantes' Don Quijote. Cr. 4.

Don Quijote as one of the major artistic expressions of the culture of the Western world.

Courses offered in the Foreign Language

French (FRE)

0101. Elementary French. Cr. 4.

Training in pronunciation, aural comprehension, oral and written expression. Laboratory work is part of class preparation.

0102. Elementary French. Cr. 4.

Prereq: FRE 0101 or placement. Continuation of French 0101.

0103. Elementary French. Cr. 4.

Prereq: FRE 0102 or placement. Continuation of French 0102.

0150. Intensive Review of French. Cr. 4.

No credit after first year college French. Prereq: placement or consent of department. Open only to students who need review after three years of high school French. Review of the materials of French 0101, 0102, 0103.

0199. Comprehensive Elementary French. Cr. 12.

No credit after first year college French or French 0150. Concentrated study of first year elementary French.

0201. Intermediate French. Cr. 4.

Prereq: FRE 0103 or 0150 or placement. Continuation of French 0103.

0208. Informal French Conversation. Cr. 1 (Max. 2).

Prereq: FRE 0101 or equiv. Does not count toward fulfillment of foreign language group requirement. No credit for French majors. Offered for S and U grades only. Informal conversation.

0210. Intermediate French: Speaking and Writing. Cr. 4.

Prereq: FRE 0201 or placement. Special attention to development of language skills. Conducted entirely in French; discussion will be based on reading from contemporary materials.

0260. Intermediate French: Readings in French Literature. Cr. 4.

Prereq: FRE 0201 or 0210 or placement. Masterpieces from the seventeenth century to the present.

0291. Commercial French. Cr. 4.

Prereq: FRE 0201 or consent of instructor. No credit toward French major. Commercial French for basic business transactions and correspondence; legal organization of French businesses and terminology in banking, marketing, commerce, accounting, travel, insurance, customs.

0309. Oral Skills. Cr. 4.

Prereq: FRE 0210. Oral discussion of selected texts.

0310. Review of French Grammar. Cr. 4.

Prereq: FRE 0210 or placement. Written and oral discussion of selected texts.

0361. Survey of French Literature I. Cr. 4.

Prereq: FRE 0260 and 0310 or consent of major adviser. Middle Ages and sixteenth century.

0362. Survey of French Literature II. Cr. 4.

Prereq: FRE 0260 and 0310 or consent of French undergraduate adviser. Seventeenth and eighteenth centuries.

0363. Survey of French Literature III. Cr. 4.

Prereq: FRE 0260 and 0310 or consent of French undergraduate adviser. Nineteenth and twentieth centuries.

0509. Oral Skills. Cr. 4.

Prereq: FRE 0309 or 0310. Oral discussion of selected texts.

0510. Advanced Oral and Written French. Cr. 4.

Prereq: FRE 0309 or 0310 or equiv.

0511. French Laboratory Theater. (0,8). Cr. 4 (Max. 12).

Prereq: consent of instructor. Does not count toward satisfaction of Foreign Language group requirement. Rehearsal and public performance of a full-length play or group of one-act plays. Several roles as performer and understudy. Grades based on diction and interpretation.

0520. Language Skills: Phonetics and Diction. Cr. 4.

Prereq: FRE 0310 or equiv.

0530. Literary Analysis and Advanced Composition. Cr. 4.

Prereq: FRE 0509 or 0510 or consent of department.

0531. Advanced Composition "sur le Motif". Cr. 4.

Prereq: FRE 0310. Composition and *explication de textes* utilizing texts related to Provence. Taught only in Provence at the Wayne State University summer program at Gordes, France.

0540. Advanced Grammar Review. Cr. 4.

Prereq: FRE 0310. Advanced French grammar.

0640. The Structure of French. Cr. 4.

Prereq: FRE 0520 or consent of instructor. Principles of linguistics and their application to French.

0645. French Civilization. Cr. 4.

Prereq: FRE 0363 or equiv. or consent of instructor. Introduction to French history, society, institutions and culture; emphasis on interrelation of cultural trends in French art and thought.

0646. Civilization "sur le Motif". Cr. 4.

Prereq: FRE 0310. Aspects of modern French civilization in Provence through daily readings and direct contact with the region. Taught only in Provence at the Wayne State University summer program at Gordes, France.

0647. French Civilization II — Contemporary France. Cr. 4.

Prereq: FRE 0363 or equiv. or consent of instructor. History, society, art, institutions, education and political life of France from the III Republic to the present day. Films, slides and museum visits.

0651. Renaissance I: 1500-1550. Cr. 4.

Prereq: FRE 0363. Rabelais, Marot, Sceve, and others.

0652. Renaissance II: 1550-1600. Cr. 4.

Prereq: FRE 0363. Montaigne, Ronsard, du Bellay, and others; the theatre.

0663. Classicism I. Cr. 4.

Prereq: FRE 0363. Historical background, religious and literary movements in the seventeenth century. Development of the classical ideal in non dramatic literature, salons, academies. Representative authors from Descartes to La Bruyere.

0664. Classicism II. Cr. 4.

Prereq: FRE 0363. Seventeenth century theater; mainly: Corneille, Moliere, and Racine.

0665. The Enlightenment I: 1700-1750. Cr. 4.

Prereq: FRE 0363. Philosophy, novel and drama. Bayle, Fontenelle, Montesquieu, Marivaux, early works of Voltaire.

0666. The Enlightenment II: 1750-1800. Cr. 4.

Prereq: FRE 0363. Philosophy, novel and drama. Diderot, Rousseau, Beaumarchais, later works of Voltaire.

0677. Studies in French Literature. Cr. 4 (Max. 12).

Prereq: FRE 0363. Works of an outstanding writer or of a literary movement.

0681. Nineteenth Century I: 1800-1850. Cr. 4.

Prereq: FRE 0363. Romanticism and pre-realism. Prose, poetry and drama. Chateaubriand, Lamartine, Hugo, Balzac, and others.

0682. Nineteenth Century II: 1850-1900. Cr. 4.

Prereq: FRE 0363. Realism, naturalism, novel and theater: Flaubert, Zola, Becque, and others. Parnassian poetry: Leconte de Lisle.

0683. Poetry from Baudelaire to the Present. Cr. 4.

Prereq: FRE 0363. Main currents of the modern tradition in French poetry: symbolism, surrealism, and other movements.

0684. Twentieth Century I. Cr. 4.

Prereq: FRE 0363. Novel: Gide, Proust, Mauriac, Saint-Exupery, Malraux, Camus, Sartre, Robbe-Grillet.

0685. Twentieth Century II. Cr. 4.

Prereq: FRE 0363. Drama: Giraudoux, Anouilh, Camus, Sartre, Ionesco, Beckett.

0686. Studies in Black Writers of French Expression. Cr. 4 (Max 12).

Prereq: FRE 0363 or consent of instructor. Black African and West Indian writers of French expression, poets, novelists, short story writers, essayists or dramatists, such as: Cesaire, Dadie, Diop, and Rabemananjara. Topics or genres to be announced in *Schedule of Classes*.

0690. French Bibliography and Research Methods. Cr. 4.

Prereq: two French literature courses on the 0600 level. Open only to seniors and graduate students. Orientation in research. Introduction to bibliographical problems. Methodology for papers, essays and dissertations.

0720. Advanced Diction and Oral Interpretation. Cr. 4.

Prereq: FRE 0520 or equiv. or consent of instructor. Developing of poise and confidence in speaking and interpretative reading in French and improving pronunciation, enunciation, articulation and intonation. *Explication de textes*, prose, poetry, drama. Study

of rhythm, versification. Texts of representative authors from Villon to the present.

0730. Introduction to Romance Philology (SPA 0730) (ITA 0730). Cr. 4.

Prereq: graduate major in French, Italian or Spanish or consent of department. Historical development and earliest texts in the Romance languages: Latin substrata, historical diffusion, Vulgar Latin, linguistic borrowings, classification and characteristics of the various Romance languages.

0732. Studies in French Language. Cr. 4 (Max. 12).

Prereq: FRE 0640 or 0730 or consent of instructor. Topics to be announced in *Schedule of Classes*.

0750. History of the French Language. Cr. 4.

No credit after former French 0641. Prereq: FRE 0730 or consent of instructor. Development of the language from its origins to the present day.

0751. Old French. Cr. 4.

Prereq: FRE 0730. Required of French majors. Phonology, morphology, early medieval texts.

0752. Medieval Literature. Cr. 4.

Prereq: FRE 0841. Readings representative of the literature of the Old French period.

0777. Special Studies in French Literature. Cr. 4 (Max. 12).

Prereq: a minimum of 8 credits in 0600-level French literature courses or consent of graduate adviser. Works of an outstanding writer, a literary genre, or of literary trends.

0842. Seminar in the French Language. Cr. 4 (Max. 12).

Prereq: FRE 0640 or 0750. Special problems in synchronic and diachronic aspects of the French Language.

0870. Seminar in Old French. Cr. 4 (Max. 12).

Prereq: FRE 0752 or consent of instructor. Specified aspect, movement, author, or group of authors.

0871. Seminar in the French Renaissance. Cr. 4 (Max. 12).

Prereq: minimum of eight credits in 0600 French literature courses or consent of instructor. Specified aspect, movement, author, or group of authors.

0872. Seminar in French Classicism. Cr. 4 (Max. 12).

Prereq: minimum of eight credits in 0600 French literature courses or consent of instructor. Specified aspect, author, or group of authors.

0873. Seminar in the Enlightenment. Cr. 4 (Max. 12).

Prereq: minimum of eight credits in 0600 French literature courses or consent of instructor. Specified aspect, movement, author, or group of authors.

0874. Seminar in Nineteenth Century Literature. Cr. 4 (Max. 12).

Prereq: minimum of eight credits in 0600 French literature courses or consent of instructor. Specified aspect, movement, author or group of authors.

0875. Seminar in Twentieth Century Literature. Cr. 4 (Max. 12).

Prereq: minimum of eight credits in 0600 French literature courses or consent of instructor. Specified aspect, movement, author or group of authors.

Special Courses

0090. French for Ph.D. Reading Requirement. 6 hours.
No degree credit. Offered for S and U grades only.

0590. Directed Study. Cr. 1-4.

Undergraduate prereq: consent of adviser and chairman. Graduate prereq: consent of the chairman, director and graduate officer.

0796. Research Project. Cr. 1-4.

Prereq: consent of graduate adviser.

0799. Master's Essay Direction. Cr. 2-4 (3 required).

Prereq: consent of adviser.

0899. Master's Thesis Research and Direction. Cr. 2-12 (12 required).

Prereq: consent of adviser.

0999. Doctoral Dissertation Research and Direction. Credits to be arranged.

Prereq: consent of doctoral adviser.

German (GER)

0101. Elementary German. Cr. 4.

Development of ability to speak and read German.

0102. Elementary German. Cr. 4.

Prereq: GER 0101 or placement. Continuation of German 0101.

0103. Elementary German. Cr. 4.

Prereq: GER 0102 or placement. Continuation of German 0102. Written composition. One section emphasizes development of reading skills in student's particular field of study; section announced in *Schedule of Classes*.

0150. Intensive Review of German. Cr. 4.

No credit after first year college German. Prereq: placement or consent of department. Open only to students who need review after three years of high school German. Review of the materials of German 0101, 0102, 0103.

0199. Comprehensive Elementary German. Cr. 12.

No credit after first year college German or German 0150. Concentrated study of first year elementary German.

0201. Intermediate German. Cr. 4.

Prereq: GER 0103 or 0150 or placement. Continuation of German 0103. Reading of ungraded German literature and grammar review. One section emphasizes development of reading in student's particular field of study; section announced in *Schedule of Classes*.

0204. Intermediate German. Cr. 4.

Prereq: GER 0201 or equiv. Readings in German scientific literature.

0205. Intermediate German. Cr. 4.

Prereq: GER 0201 or equiv. Readings in German chemical literature.

0208. Informal German Conversation. Cr. 1 (Max. 2).

Prereq: GER 0101 or equiv. Does not count toward fulfillment of foreign language group requirement. No credit for German majors. Offered for S and U grades only. Informal conversation.

0210. Intermediate German: Speaking and Writing. Cr. 4.
Prereq: GER 0201 or placement. Special attention to development of language skills. Conducted entirely in German; discussion will be based mainly on reading from contemporary materials.

0260. Intermediate German: Readings in Modern German Literature. Cr. 4.

Prereq: GER 0201 or 0210 or placement. Major German authors such as Kafka, Brecht and Duerrenmatt.

0310. Intermediate Oral and Written Composition I. Cr. 4.

Prereq: GER 0210 or placement. German of common usage. Practical approach to contemporary idioms.

0320. Intermediate Oral and Written Composition II. Cr. 4.

Prereq: GER 0210 or placement. German of common usage. Practical approach to contemporary idioms.

0360. Introduction to German Literature. Cr. 4.

Prereq: GER 0260 or placement.

0361. Literary Genres I: The German Novelle. Cr. 4.

Prereq: GER 0260 or placement.

0362. Literary Genres II: The German Drama. Cr. 4.

Prereq: GER 0260 or placement.

0460. Goethe. Cr. 4.

Prereq: GER 0360. Early works and *Faust: Part I*.

0510. Advanced Composition and Conversation. Cr. 4.

Prereq: GER 0310 or 0320 or equiv. Emphasis is placed on increasing the student's oral and written command of German. Detailed study of modern German syntax.

0511. German Laboratory Theatre. (0,8). Cr. 4 (Max. 12).

Prereq: consent of instructor; does not count toward fulfillment of foreign language group requirement. Rehearsal and public performance of a full-length play or group of one-act plays. Several roles as performer and understudy. Grades based on diction and interpretation.

0520. Phonetics and Diction. Cr. 4.

Prereq: GER 0310 or 0320 or equiv. Phonetic and phonological structure of standard modern German speech. Theory and practice.

0640. Structure of German. Cr. 4.

Prereq: GER 0510 or 0511. Principles of linguistics and their application to German. Conducted in English.

0655. German Civilization. Cr. 4.

Prereq: consent of instructor. Conducted in German. Interrelation of cultural trends in German art and thought.

Prerequisite to all 0600 level courses in German literature: German 0360 and 0361 or 0362 or equivalent.

0661. German Lyric Poetry. Cr. 4.

Historical survey of German lyric poetry from the Baroque to the twentieth century; the tools and methods of interpretation.

0662. Bibliography and Methodology of Literary Research. Cr. 4.

0663. Problems in German Literary and Aesthetic Theory (HON 0487). Cr. 4.

Major critics or criticism of a period, analyses of texts and ideas of a specific period, and the systematic investigation of important aesthetic questions.

0664. Early Works of Goethe and Schiller. Cr. 4.

Introduction to the Storm and Stress movement and the most important early works of Goethe and Schiller.

0665. Romanticism I. Cr. 4.

Philosophical and aesthetical foundations of German Romanticism.

0666. Romanticism II. Cr. 4.

Late Romanticism: Brentano, Arnim, Hoffman, Fouque, Chamisso.

0667. German Literature in the Nineteenth Century I. Cr. 4.

Junges Deutschland; Heine, Buechner, Grabbe, Hebbel; the poetry of Droste-Huelshoff.

0668. German Literature in the Nineteenth Century II. Cr. 4.

Prose of realism: Stifter, Keller, Meyer, Gotthelf, Storm, Raabe, Fontane; the historical novel; exotic literature; regional writers; and women novelists.

0669. Early German Literature. Cr. 4.

From the beginning through the Reformation.

0670. The Barock. Cr. 4.

Historical survey of poetry, *lied*, and poetics; seventeenth century mysticism and foundations of *Pietismus*; the Jesuit drama and the secular drama; the novel.

0672. The German Enlightenment. Cr. 4.

Lessing; *Sturm und Drang*.

0673. Weimar Classicism. Cr. 4.

Goethe, Schiller.

0675. Kleist, Hoelderlin, Grillparzer. Cr. 4.

0677. German Literature from 1885 to 1930. Cr. 4.

0678. German Literature since 1930. Cr. 4.

0679. Studies in German Literature. Cr. 4 (Max. 12).

A major author, genre, or literary movement. Topics to be announced in *Schedule of Classes*.

0680. Thomas Mann. Cr. 4

0710. Advanced Composition and Stylistics. Cr. 4.

Different levels of style in modern German and earlier literary periods. Composition in modern German.

0751. Introduction to the History of the German Language and Historical Grammar. Cr. 4.

0752. Middle High German Language. Cr. 4.

0754. The Middle High German Lyric. Cr. 4.

Prereq: GER 0752. Selections from the poems of Heinrich von Morungen, Reinmar von Hagenau, Walther von der Vogelweide, and Neidhart von Reuenthal.

0755. The Middle High German Epic. Cr. 4.
Prereq: GER 0752. Hartmann's *Der arme Heinrich*, the *Nibelungenlied*, and Wernher's *Helmbrecht* in their entirety, and selections from *Iwein*, *Parzival*, and *Tristan und Isolt*.

0756. Gothic. Cr. 4.
Prereq: GER 0572. Selections from the *Codex Argenteus* serve as a basis for study of linguistic aspects of Gothic. Phonology and morphology are treated historically and in the light of the structuralist research of today.

0757. Old High German. Cr. 4.
Prereq: GER 0756. Selected texts from the main dialects (Bavarian, Alemannic, Franconian) will serve to present a unifying image of the period. Individual study and reports.

0758. Old Saxon. Cr. 4.
Prereq: GER 0756. Linguistic structure of the Old Saxon language and its relation to other Germanic languages. Extensive readings from the Old Saxon epic *Heliand* and the *Genesis*.

0868. Seminar in Older German Literature. Cr. 4 (Max. 12).
Prereq: GER 0754 or 0755. Topics to be announced in *Schedule of Classes*.

0869. Seminar in Seventeenth Century Literature. Cr. 4 (Max. 12).
Topics to be announced in *Schedule of Classes*.

0870. Seminar in the German Language. Cr. 4 (Max. 12).
Prereq: GER 0752.

0871. Goethe Seminar. Cr. 4 (Max. 12).

0875. Seminar in Eighteenth Century Literature. Cr. 4 (Max. 12).

0876. Seminar in Nineteenth Century Literature. Cr. 4 (Max. 12).
Specified aspect, movement, author or group of authors.

0877. Seminar in Twentieth Century Literature. Cr. 4 (Max. 12).
Specified aspect, movement, author or group of authors.

Special Courses

0090. German for Ph.D. Reading Requirements. 6 hours.
No degree credit. Offered for S and U grades only.

0590. Directed Study. Cr. 1-4 (Max. 8).
Undergrad. prereq: consent of German adviser; grad. prereq: consent of German adviser and graduate officer.

0701. Problems and Methods of Teaching German on the College Level. Cr. 4.
Prereq: completion of undergraduate major in German.

0796. Research Project. Cr. 1-4 (Max. 6).
Prereq: consent of German adviser.

0799. Master's Essay Direction. Cr. 2-4 (3 required).
Prereq: consent of German adviser.

0899. Master's Thesis Research and Direction. Cr. 2-12 (12 required).
Prereq: consent of adviser.

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0999. Doctoral Dissertation Research and Direction.
Credits to be arranged.
Prereq: consent of doctoral adviser.

Italian (ITA)

0101. Elementary Italian. Cr. 4.
Ear training, grammar, reading, writing, speaking; emphasis on ability to speak and read Italian.

0102. Elementary Italian. Cr. 4.
Prereq: ITA 0101 or placement. Continuation of Italian 0101.

0103. Elementary Italian. Cr. 4.
Prereq: ITA 0102 or placement. Continuation of Italian 0102. Composition, conversation, reading of modern prose.

0150. Intensive Review of Italian. Cr. 4.
Prereq: placement or consent of department. No credit after first year college Italian. Open only to students with some previous knowledge of Italian from high school or family background. Review of the materials of ITA 0101, 0102 and 0103.

0201. Intermediate Italian. Cr. 4.
Prereq: ITA 0103 or placement. Grammar review. Composition, conversation, reading, discussion of contemporary problems.

0210. Intermediate Italian: Speaking and Writing. Cr. 4.
Prereq: ITA 0201 or placement. Special attention to development of language skills. Conducted entirely in Italian; discussion will be based on readings relevant to contemporary problems.

0260. Intermediate Italian: Readings in Modern Italian Literature. Cr. 4.
Prereq: ITA 0201 or 0210 or placement. Contemporary writers. Cultural survey of modern Italy.

0310. Italian Conversation and Composition. Cr. 4 (Max. 8).
Prereq: ITA 0210 or placement. Conversation and composition based on current topics and reading materials.

0360. Italian Writers of the Middle Ages. Cr. 4.
Prereq: ITA 0260 or placement. Selections of prose and poetry from the origins through the fourteenth century.

0361. Italian Writers of the Renaissance. Cr. 4.
Prereq: ITA 0260 or placement. Selections of prose, poetry and theatre from the fifteenth and sixteenth centuries.

0362. Modern and Contemporary Italian Writers. Cr. 4.
Prereq: ITA 0260 or placement. Works of twentieth century Italian writers including selections of prose, poetry and drama.

0510. La Lingua Italiana nel Mondo. Cr. 4 (Max. 8).
Prereq: ITA 0310 or placement. An advanced course dealing with a historical, geographical, or practical aspect of the Italian language. Topics to be announced in *Schedule of Classes*.

0511. Italian Laboratory Theatre. (0,8), Cr. 4 (Max. 12).
Prereq: consent of instructor; does not count toward fulfillment of foreign language group requirement. Rehearsal and public performance of a full length play or group of one-act plays. Several roles as performer and understudy. Grades based on diction and interpretation.

0530. Diction and Stylistics. Cr. 4.

Prereq: ITA 0510 or placement. Clarity, fluency, elegance in speaking, creative writing. Stylistic comparison of authors and genres.

0650. Text and Context: Critical Approaches to Italian Literature. Cr. 4.

Prereq: ITA 0360 or 0361 or 0362 or 0460 or consent of department. Introduction to the criticism of Italian literature; the theoretical problems of classification and analysis; practical application of the methods of major critics.

0660. Early Italian Literature. Cr. 4.

Prereq: ITA 0460 or consent of department. *The Duecento* and the *Dolce stil nuovo*, minor writers of the *Trecento*. (Former ITA 0669)

0661. Dante I. Cr. 4.

Prereq: ITA 0460 or consent of department. *The Divina Commedia*. (Former ITA 0674)

0662. Dante II. Cr. 4.

Prereq: ITA 0460 or consent of department. *The Divina Commedia*. Continuation of Italian 0661. (Former ITA 0675)

0665. Petrarch and Boccaccio Studies. Cr. 4 (Max. 8).

Prereq: ITA 0360 or consent of department. Analysis of style, structure, content of the *Canzoniere* of Petrarch and/or Boccaccio's *Decameron* and other works; study of background, influence and interpretation. Topics to be announced in *Schedule of Classes*.

0666. Studies in Renaissance Literature. Cr. 4 (Max. 8).

Prereq: ITA 0361 or consent of department. The major literary contributions of the fifteenth and sixteenth centuries, including the Renaissance epic, Alberti, Da Vinci, Machiavelli, Castiglione, the Petrarchists and the *Novelieri*. Topics to be announced in *Schedule of Classes*.

0667. Studies in Renaissance Thought. Cr. 4 (Max. 8).

Prereq: ITA 0360 or 0361 or consent of department. The principal topics of analysis and debate in fourteenth, fifteenth and sixteenth century Italy. Topics to be announced in *Schedule of Classes*.

0670. Mannerism and Baroque. Cr. 4.

Prereq: ITA 0360 or 0361 or consent of department. Survey of literary mannerism and poetic theory in the late sixteenth and early seventeenth centuries. Analysis of works of Michelangelo, Tasso, Guarino, Marino, Tesauro, Galileo and others.

0676. Classicism and Pre-Romanticism. Cr. 4.

Prereq: ITA 0362 or consent of instructor. The *Arcadia*, "illuminismo", and pre-romanticism in eighteenth century Italy. Representative works of Vico, Metastasio, Goldoni, Alfieri and others.

0679. Italian Theater: Origins Through the Renaissance. Cr. 4.

Prereq: ITA 0360 and 0361 or consent of instructor. Religious, folkloric and classical origins of the theater in Italy: *laude drammatiche*, *ascre rappresentazioni* comedies and tragedies of Poliziano, Machiavelli, Ariosto and others.

0683. Poetry from Parini to Carducci. Cr. 4.

Prereq: ITA 0362 or consent of instructor. Neoclassic, romantic and Parnassian poetry from 1750 to 1890. Emphasis on the poetry of Parini, Foscolo, Manzoni, Leopardi and Carducci.

0684. Poetry from Pascoli to the Present. Cr. 4.

Prereq: ITA 0362 or consent of instructor. Decadentism, futurism,

hermeticism and contemporary trends in poetry. Emphasis on the works of Pascoli, D'Annunzio, Saba, Montale and Ungaretti.

0685. The Modern Italian Theater. Cr. 4.

Prereq: ITA 0362 or consent of instructor. The development of Italian theater in this century. Representative plays by D'Annunzio, Pirandello, Betti, De Filippo, Buzzati and others.

0687. The Nineteenth Century Italian Novel. Cr. 4.

Prereq: ITA 0362 or consent of instructor. The major romantic and veristic novelists of the nineteenth century: Foscolo, Verga, Fogazzaro. Detailed study of Manzoni's *Promessi Sposi*.

0688. The Modern Italian Novel: 1900-1945. Cr. 4.

Prereq: ITA 0362 or consent of instructor. Freudian, Marxist, existentialist and Fascist influences on the novel. Representative works of Pirandello, Svevo, Moravia, Silone and Vittorini.

0689. Contemporary Italian Fiction: 1945-Present. Cr. 4.

Prereq: ITA 0362 or consent of instructor. Neorealism and new directions in the fiction of contemporary Italy.

0690. Studies in Italian Literature. Cr. 4 (Max. 12).

Prereq: consent of department. Works of an outstanding writer or of a literary movement. Topics to be announced in *Schedule of Classes*. (Former ITA 0677)

0730. (FRE 0730) Introduction to Romance Philology (SPA 0730). Cr. 4.

Prereq: graduate major in French, Italian or Spanish or consent of department. Historical development and earliest texts in the Romance languages: Latin substrata, historical diffusion, Vulgar Latin, linguistic borrowings, classification and characteristics of the various Romance languages.

0870. Seminar in Italian Studies. Cr. 4 (Max. 12).

Prereq: graduate major in Italian or consent of department. Problems of research in connection with a central figure (Dante, Petrarca, Boccaccio, etc.), a dominant literary current, or various genres. Topics to be announced in *Schedule of Classes*.

Special Courses

0590. Directed Study. Cr. 1-4 (Max. 8).

Undergrad. prereq: consent of adviser and chairman; grad. prereq: consent of adviser, chairman and graduate officer.

0796. Research Project. Cr. 1-4.

Prereq: consent of Italian adviser.

0799. Master's Essay Direction. Cr. 2-4 (4 required).

Prereq: consent of Italian adviser.

0899. Master's Thesis Research and Direction. Cr. 2-12 (12 required).

Prereq: consent of adviser.

Portuguese (POR)

These courses are designed for relatively advanced students who have already demonstrated some ability in related languages. Courses in Portuguese may not be elected in satisfaction of the foreign language group requirement.

†0501. Elements of Portuguese. Cr. 4.

Prereq: 2 years of college work in a Romance language or in Latin, or consent of chairman. An accelerated introductory course in the Portuguese language.

†0502. Readings in Modern Portuguese. Cr. 4.

Prereq: POR 0501 or consent of chairman. Representative texts from the Portuguese literature of the nineteenth and twentieth centuries.

†0503. Early Portuguese. Cr. 4.

Prereq: POR 0502 or consent of chairman. Rise and development of the Portuguese language and literature from the beginning to Camoes.

†0590. Directed Study. Cr. 4.

Undergrad. prereq: consent of instructor and chairman; graduate prereq: consent of chairman, director and graduate officer.

0796. Research Project. Cr. 1-4 (Max. 4).

Prereq: consent of instructor.

Spanish (SPA)

0101. Elementary Spanish. Cr. 4.

Ear training, grammar, reading, writing, speaking.

0102. Elementary Spanish. Cr. 4.

Prereq: SPA 0101 or placement. Continuation of Spanish 0101.

0103. Elementary Spanish. Cr. 4.

Prereq: SPA 0102 or placement. Continuation of Spanish 0102.

0150. Intensive Review of Spanish. Cr. 4.

No credit after first year college Spanish. Prereq: placement or consent of department. Open only to students who need review work after three years of high school Spanish. Review of the materials of Spanish 0101, 0102, 0103.

0199. Comprehensive Elementary Spanish. Cr. 12.

No credit after first year college Spanish or Spanish 0150. Concentrated study of first year elementary Spanish.

0201. Intermediate Spanish. Cr. 4.

Prereq: SPA 0103 or 0150 or placement. Grammar review. Emphasis on composition, reading, conversation.

0210. Intermediate Spanish: Speaking and Writing. Cr. 4.

Prereq: SPA 0201 or placement. Increasing ability in the spoken language. Conducted entirely in Spanish, this course provides opportunity for oral reports based on readings from current Spanish and Spanish American newspapers, magazines, essays, and criticism.

0260. Intermediate Spanish: Readings in Modern Spanish Literature. Cr. 4.

Prereq: SPA 0201 or 0210 or placement. Conducted entirely in Spanish. Reading and discussion of plays and novels from con-

temporary peninsular and Spanish-American authors; increases oral and written command of Spanish.

0310. Conversation and Composition. Cr. 4.

Prereq: SPA 0210 or placement. Basic review of the grammatical structures of Spanish; informal class conversations in strict accordance with the grammatical principles and linguistic skills presented formally at this level. Conducted in Spanish.

0460. Theme and Form: A Survey I. Cr. 4.

Prereq: SPA 0260 or placement. Spanish literature to 1700.

0470. Theme and Form: A Survey II. Cr. 4.

Prereq: SPA 0260 or placement. Continuation of Spanish 0460. 1700 to the present.

0510. Advanced Conversation and Composition. Cr. 4.

Prereq: SPA 0310 or placement.

0511. Spanish Laboratory Theater. (0,8). Cr. 4 (Max. 12).

Prereq: consent of instructor; may not be used toward fulfillment of the foreign language group requirement. Rehearsal and public performance of a full-length play or group of one-act plays. Several roles as performer and understudy. Grades based on diction and interpretation.

0520. Spanish Phonetics. Cr. 4.

Prereq: SPA 0310 or consent of department. A systematic study of Spanish sounds; intensive drill in accurate pronunciation.

0530. Diction and Stylistics I. Cr. 4.

Prereq: SPA 0310 or placement. Intensive study of grammar and syntax. Translation of literary texts into Spanish. Free composition. Conducted in Spanish.

0540. Diction and Stylistics II. Cr. 4.

Prereq: SPA 0310 or placement. Intensive study of grammar and syntax. Translation of literary texts into Spanish. Free composition. Conducted in Spanish.

0640. The Structure of Spanish. Cr. 4.

Prereq: SPA 0520 or consent of department. Principles of linguistics and their application to Spanish.

0641. Chicano, Cuban and Puerto Rican Spanish. Cr. 4.

Prereq: SPA 0260, 0310 or consent of department. Practical linguistic description of the Chicano, Cuban and Puerto Rican varieties of Latin-American Spanish.

0645. Society, Institutions and Culture of Spain. Cr. 4.

Prereq: SPA 0460 or 0470 or consent of department. Introduction to Spanish civilization; interrelation of cultural trends in Spanish art and thought.

0646. Society, Institutions and Culture of Spanish America. Cr. 4.

Prereq: SPA 0460 or 0470 or consent of department. Introduction to Hispano-American civilization.

0660. The Medieval Synthesis: Origins to 1492. Cr. 4.

Prereq: SPA 0460 or 0470 or consent of department. Main currents in Hispanic literary history from beginnings to era of Fernando and Isabel.

0661. Renaissance and Humanism: 1492-1588. Cr. 4.

Prereq: SPA 0460 or 0470 or consent of department. Emergence of the individual: men and ideas of Spanish Renaissance.

0662. Baroque and Rococo: 1588-1700. Cr. 4.

Prereq: SPA 0460 or 0470 or consent of department. Golden Age of Spanish letters and its decline.

- 0663. Reason and Revolt: 1700-1849. Cr. 4.**
Prereq: SPA 0460 or 0470 or consent of department. Neo-Classical period and Romantic Revolution.
- 0664. Realism and After: 1849-1920. Cr. 4.**
Prereq: SPA 0460 or 0470 or consent of department. Nineteenth century and its projection into the twentieth.
- 0665. Age of Abstraction: 1920 to the Present. Cr. 4.**
Prereq: SPA 0460 or 0470 or consent of department. Wars of ideas: main currents in Hispanic cultural history.
- 0666. Hispanoamerica: 1492-1888. Cr. 4.**
Prereq: SPA 0460 or 0470 or consent of department. Literature of Colonial Period and Republics up to Modernism.
- 0667. Hispanoamerica: 1888 to the Present. Cr. 4.**
Prereq: SPA 0460 or 0470 or consent of department. Modernism and the Contemporaries.
- 0668. Studies in Hispanic Literature. Cr. 4 (Max. 12).**
Prereq: SPA 0460 or 0470 or consent of department. Variable subjects: writers, themes, movements. Topics to be announced in *Schedule of Classes*.
- 0671. The Generation of 1898. Cr. 4.**
Prereq: SPA 0460 or 0470 or consent of department. Leading figures of the generation of 1898: Unamuno, Baroja, Azorin, Antonio Machado, Benavente, Valle-Inclan.
- 0677. The Novel in Hispanoamerica I. Cr. 4.**
Prereq: SPA 0460 or 0470 or consent of department. The nineteenth century novel. The novel of Mexican revolution, *indianista* novel, artistic novel, *criollismo*, city novel, country novel.
- 0678. The Novel in Hispanoamerica II. Cr. 4.**
Prereq: SPA 0460 or 0470 or consent of department. Continuation of Spanish 0677. Recent trends.
- 0680. The Comedia I. Cr. 4.**
Prereq: SPA 0460 or 0470 or consent of department. Origins of drama; liturgical and secular drama in Medieval Europe; drama of pre-Lopistas. Plays of Lope de Vega and Ruiz de Alarcón.
- 0681. The Comedia II. Cr. 4.**
Prereq: SPA 0460 or 0470 or consent of department. Continuation of Spanish 0680. Tirso de Molina, Calderón, minor dramatists.
- 0682. Cervantes I. Cr. 4.**
Prereq: SPA 0460 or 0470 or consent of department. Detailed study of *Don Quijote*. Other works.
- 0683. Cervantes II. Cr. 4.**
Prereq: SPA 0460 or 0470 or consent of department. Continuation of Spanish 0682.
- 0684. The Novel in Spain I. Cr. 4.**
Prereq: SPA 0460 or 0470 or consent of department. The novel of the nineteenth century.
- 0685. Theatre: Yesterday and Today. Cr. 4.**
Prereq: SPA 0460 or 0470 or consent of department. Growth from 1700 to the present.
- 0686. Poetry: Yesterday and Today. Cr. 4.**
Prereq: SPA 0460 or 0470 or consent of department. Leading figures and trends.
- 0687. The Novel in Spain II. Cr. 4.**
Prereq: SPA 0460 or 0470 or consent of department. The novel of the twentieth century.
- 0689. Poetry in Hispanoamerica. Cr. 4.**
Prereq: SPA 0460 or 0470 or consent of department. Leading figures and trends.
- 0730. (FRE 0730) Introduction to Romance Philology (ITA 0730). Cr. 4.**
Prereq: graduate major in French or Italian or Spanish or consent of department. Historical development and earliest texts in the Romance languages: Latin substrata, historical diffusion, Vulgar Latin, linguistic borrowings, classification and characteristics of the various Romance languages.
- 0740. Old Spanish. Cr. 4.**
Prereq: SPA 0730 or consent of department. Literary language in its development from the earliest texts to 1400.
- 0751. History of the Spanish Language. Cr. 4.**
Prereq: SPA 0640 or consent of department. The Spanish language in Spain and America from the earliest days to the present.
- 0770. Seminar in the Middle Ages. Cr. 4 (Max. 12).**
Prereq: graduate major in Spanish or consent of department.
- 0771. Seminar in the Golden Age. Cr. 4 (Max. 12).**
Prereq: graduate major in Spanish or consent of department.
- 0772. Seminar in Modern Drama. Cr. 4 (Max. 12).**
Prereq: graduate major in Spanish or consent of department.
- 0773. Seminar in Modern Prose. Cr. 4 (Max. 12).**
Prereq: graduate major in Spanish or consent of department.
- 0774. Seminar in Poetry. Cr. 4 (Max. 12).**
Prereq: graduate major in Spanish or consent of department.
- 0775. Seminar in Hispanoamerican Literature. Cr. 4 (Max. 12).**
Prereq: graduate major in Spanish or consent of department.
- 0776. Seminar in Hispanic Studies. Cr. 4 (Max. 12).**
Prereq: graduate major in Spanish or consent of department. Topics to be announced in *Schedule of Classes*.

Special Courses

- 0590. Directed Study. Cr. 1-4 (Max. 6).**
Undergrad. prereq: consent of adviser and chairman; grad. prereq: consent of adviser, chairman and graduate officer.
- 0796. Research Project. Cr. 1-4 (Max. 6).**
Prereq: consent of Spanish adviser.
- 0799. Master's Essay Direction. Cr. 2-4 (3 required).**
Prereq: consent of adviser.
- 0899. Master's Thesis Research and Direction. Cr. 2-12 (12 required).**
Prereq: consent of adviser.
- 0999. Doctoral Dissertation Research and Direction. Credits to be arranged.**
Prereq: consent of doctoral adviser.

SLAVIC AND EASTERN LANGUAGES AND LITERATURES

Office: 443 Manoogian Hall

Chairman: Doris V. Johnson

PROFESSORS

Tatjana Cizévska, Harry H. Josselson (Emeritus), Edmund Ordon

ASSISTANT PROFESSORS

Kenneth Brostrom, Frank J. Corliss, Jr., Doris V. Johnson

ADJUNCT ASSISTANT PROFESSOR

Robert P. Rubyan

DEGREE PROGRAMS

Bachelor of Arts — with a major in Polish

Bachelor of Arts — with a major in Russian

Bachelor of Arts — with a major in Slavic

Master of Arts — with a major in East European studies

Master of Arts — with a major in Russian

The courses offered in the Department of Slavic Languages and Literatures are designed (1) for practical training in one or more Slavic languages and (2) as a means toward understanding and evaluating East European culture in general and various Slavic literatures in particular.

BACHELOR OF ARTS

In Polish — Students majoring in Polish are required to complete satisfactorily forty-eight credits in Polish, including Polish 0346 or equivalent and Polish 0445 or equivalent and three other courses in Polish literature, and Slavic 0565 or Polish 0465.

In Russian — Students majoring in Russian are required to complete satisfactorily forty-four credits in Russian *beyond* Russian 0201. These credits will include:

- a) Russian 0245, 0302, 0303 and 0445;
- b) Russian 0409 and 0410;
- c) Russian 0380, 0460, 0560 and either 0530 or 0550;
- d) One of the following: Russian 0520, 0521, 0575, Slavic 0565.

In Slavic — Students majoring in Slavic are required to complete satisfactorily thirty-six credits in Russian, including

Russian 0245, 0302, 0303, and either 0410 or 0445 and one course in Russian literature, and twenty-four credits in Polish, or Ukrainian or the equivalent in another Slavic language, and Slavic 0565.

All majors are strongly urged to elect courses in cognate fields, such as geography, history or political science (for example, Geography 0525, History 0566, Political Science 0506).

MASTER OF ARTS IN EAST EUROPEAN STUDIES

Graduate students pursuing a major in East European studies leading to the Master of Arts degree (see page 288) may earn graduate credit in Polish, Russian, or Slavic.

MASTER OF ARTS IN RUSSIAN

Plan B — Forty-four credits in course work plus an essay.

Plan C — Forty-eight credits in course work.

The applicant must have an adequate undergraduate major, or the equivalent, in Russian, with a reasonable proficiency in speaking and writing Russian, and some knowledge of a second foreign language, either ancient or modern.

Degree Requirements — All courses must be approved by the student's major adviser.

1. Linguistics: Russian 0709, 0710, Slavic 0655, and Russian 0765.
2. Cultural core: Russian 0551 and 0630 or Slavic 0565.
3. Literature: five courses from Russian 0530, 0550, 0560, 0660, 0720*, 0770*. Slavic 0665 or 0692 may be taken in lieu of one course in Russian literature.
4. One seminar, i.e., either Russian 0870 or 0871.
5. Final written and oral examination.

ASSISTANTSHIPS

A limited number of graduate teaching assistantships in the Department of Slavic and Eastern Languages are available to qualified students. Inquiries and applications should be addressed to the chairman of the department. Applications should be submitted by February 15. Awards are normally made on or about March 15.

* May be repeated for credit.

COURSES OF INSTRUCTION¹

Courses in English Translation

The following courses are open to all students and may be taken for humanities group requirement.

Armenian (ARM)

0465. Survey of Armenian Culture and Literature in Translation: Ancient and Medieval Periods. Cr. 4 (Max. 12).

Cultural heritage of Armenian people; their contribution in arts, literature, music, folklore.

0470. Armenian Culture and Literature in Translation: The Great Awakening. Cr. 4.

Seventeenth to nineteenth centuries following the invention of the printing press and the spread of books and learning.

0475. Armenian Culture and Literature in Translation: The Modern Period. Cr. 4.

Great expectations shattered by genocide and the First World War; dawn of hope; signs of a cultural explosion in the homeland and in the diaspora.

0550. The Armenian Renaissance. IX-XV Centuries in Translation. Cr. 4.

Eastern and Western Renaissance; comparison of Armenian, Byzantine and Islamic arts. Evolution of technique, style and theme of different schools of Armenian music, miniature and architecture. Gothic and Renaissance Armenian architecture.

0570. Genre in Armenian Literature in Translation. Cr. 4 (Max. 12).

Prereq: ARM 0203 or equiv. Development of a literary form: poetry, short story, drama, novel; major exponents of the form. Topics to be announced in *Schedule of Classes*.

Polish (POL)

0310. Polish Folklore: in Translation. Cr. 4.

Folklore of various regions in Poland, customs and ceremonies relating to seasons of the year and holidays; folk tales, proverbs, dances, and songs.

0465. Survey of Polish Culture in Translation. Cr. 4.

No credit toward Slavic major. Main features of customs and institutions, effect on cultural development, major achievements in arts and sciences, contributions to other cultures.

0565. Polish Civilization and Culture in Translation: Contemporary Poland. Cr. 4.

Relationship to past Polish history.

0575. Masterpieces of Polish Literature in Translation. Cr. 4.

Reading and discussions of internationally known works of Polish literature from the Renaissance to the twentieth century.

Russian (RUS)

0220. The Russian Writer and Society: in Translation. Cr. 4.

Not open to Russian majors. Russian writer's protest against the

system from the time of the czars to the present day. The cost to the writer and the impact on society. All readings in English.

0221. The Modern Hero in Russian Literature: in Translation. Cr. 4.

Not open to Russian majors. Literary reflections of the Russian view of man in modern Russian literature; changing concepts. Course materials read in English translation.

0222. Contemporary Soviet Life. Cr. 4.

Not open to Russian majors. Contemporary Soviet reality as seen through the eyes of Russian authors both in the Soviet Union and in exile, and as seen through the eyes of Western scholars, journalists and students. Course materials read in English translation.

0225. The Russian Writer in Search of Himself. Cr. 4.

Not open to Russian majors. Autobiographical and memoir literature by major Russian writers. All readings in English.

0230. Turgenev: in English Translation. Cr. 4.

Not open to Russian majors. Survey of Turgenev's major works in short story, novel and drama in the context of the social, intellectual and literary controversies of the time.

0310. Russian Folklore: in Translation. Cr. 4.

Introduction to a wide variety of Russian folklore genres.

0465. Golden Age of Russian Literature in Translation. Cr. 4.

Literature of nineteenth century; special attention to major writers.

0520. Chekhov: in English Translation. Cr. 4.

Major plays and short stories; Chekhov's development and influence as writer and as social commentator.

0521. Dostoevsky: in English Translation. Cr. 4.

Two major novels and the shorter works. Evolution of Dostoevsky's art and thought.

0531. Women in Russian Literature. Cr. 4.

Women in Russian literature and society; personal triumphs in the face of societal restrictions. All readings in English.

0535. Survey of Russian Literature in Translation: 1880-1917. Cr. 4.

Open only to non-majors. Main works of the Silver Age of Russian literature from Chekhov to the October Revolution.

0565. Soviet Literature in Translation. Cr. 4.

Russian literature in Soviet period.

0575. Selected Topics: in Translation. Cr. 4 (Max. 12).

A particular writer, genre, or theme in Russian literature. Topics to be announced in *Schedule of Classes*.

0675. Russian Drama in Translation. Cr. 4.

Masterpieces of the Russian theatre from Pushkin to the experimental 1920's. Selected works of Ostrovsky, Tolstoy, Chekhov, together with those of the symbolists and modernists.

Slavic (SLA)

0575. Masterpieces of Slavic Literature in Translation. Cr. 4.

Major works in Slavic literature, excluding Russia, from their beginnings through the nineteenth century.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

0670. Slavic Romanticism in Translation and Its Connection with the West. Cr. 4.

Major Slavic romantic works and their place in European romanticism.

Ukrainian (UKR)

0455. Ukrainian Literature of the Nineteenth Century in Translation. Cr. 4.

Classicism, Romanticism, Realism and Impressionism and their foremost representatives; social and political background.

0465. Survey of Ukrainian Culture and Literature in Translation. Cr. 4.

No credit toward Slavic major. Distinctive features of language, oral and written literatures; development of linguistic, literary cultural separateness.

Courses in Foreign Language Instruction

Armenian (ARM)

0101. Elementary Armenian. Cr. 4.

Introduction to sounds, spelling, vocabulary forms, syntax as basis for reading and conversation.

0102. Elementary Armenian. Cr. 4.

Prereq: ARM 0101 or equiv. Continuation of Armenian 0101.

0103. Elementary Armenian. Cr. 4.

Prereq: ARM 0102 or equiv. Continuation of Armenian 0102.

0201. Intermediate Armenian. Cr. 4.

Prereq: ARM 0103 or equiv. Study in depth of structure, particularly syntax, based on reading. Oral and written practice.

0202. Intermediate Armenian. Cr. 4.

Prereq: ARM 0201 or equiv. Continuation of Armenian 0201.

0203. Intermediate Armenian. Cr. 4.

Prereq: ARM 0202 or equiv. Continuation of Armenian 0202.

0590. Directed Study. Cr. 2-4 (Max. 12).

Undergraduate credit only. Prereq: ARM 0203 or equiv., written consent of chairman. For students who wish credit for program of work not included in regularly scheduled courses, either in language or in literature.

Polish (POL)

0101. Elementary Polish. Cr. 4.

Sounds, spelling, vocabulary, forms, syntax as basis for reading and conversation.

0102. Elementary Polish. Cr. 4.

Prereq: POL 0101 or equiv. Continuation of Polish 0101.

0103. Elementary Polish. Cr. 4.

Prereq: POL 0102 or equiv. Continuation of Polish 0102.

0201. Intermediate Polish. Cr. 4.

Prereq: POL 0103 or equiv. Study in depth of structure, particularly syntax, based on reading. Oral and written practice.

0302. Intermediate Polish I. Cr. 4.

Prereq: POL 0201 or equiv. Broader knowledge of Polish grammar and lexicon based on reading of Polish literature.

0303. Intermediate Polish II. Cr. 4.

Prereq: POL 0302 or equiv. Continuation of Polish 0302.

0346. Oral and Written Composition. Cr. 4.

Prereq: POL 0303 or equiv. Structural features not mastered in beginning courses. Extends mastery of written and spoken Polish.

0445. Language Skills: Advanced Speaking and Writing. Cr. 4.

Prereq: POL 0346 or equiv. Intensive practical training in use of Polish idiom to achieve fluency of expression.

0460. Major Polish Writers and Their Times. Cr. 4 (Max. 8).

Prereq: POL 0303 or equiv; consent of instructor. Mickiewicz or Sienkiewicz; major works; contemporaries; impact on development of Polish literature. Topics to be announced in *Schedule of Classes*.

0570. Genre in Polish Literature. Cr. 4 (Max. 12).

Prereq: POL 0303 or equiv. Development of a literary form: short story, poetry, or literary criticism; emphasis on major exponents of the form. Topics to be announced in *Schedule of Classes*.

0590. Directed Study. Cr. 2-4 (Max. 12).

Graduate major credit only in East European studies. Undergrad. prereq: POL 0303 or equiv., written consent of chairman; grad. prereq: written consent of chairman and graduate officer.

Russian (RUS)

0090. Russian for Ph.D. Reading Requirement I. Cr. 3.

No degree credit. Offered for S and U grades only. Basic Russian grammar and vocabulary; practice in reading.

0095. Russian for Ph.D. Reading Requirement II. Cr. 3.

Prereq: RUS 0090. No degree credit. Offered for S and U grades only. Continuation of basic Russian grammar and vocabulary; readings in the specific field of specialization.

0101. Elementary Russian. Cr. 4.

Sounds, spelling, vocabulary, forms, syntax as basis for reading and conversation.

0102. Elementary Russian. Cr. 4.

Prereq: RUS 0101 or equiv. Continuation of Russian 0101.

0103. Elementary Russian. Cr. 4.

Prereq: RUS 0102 or equiv. Continuation of Russian 0102.

0104. Technical Russian I. Cr. 4.

No credit toward foreign language group requirement. Introduction to technical Russian; basic grammar and vocabulary with emphasis on technical vocabulary.

0105. Technical Russian II. Cr. 4.

No credit toward foreign language group requirement. Prereq: RUS 0104. Reading of technical, scientific, and commercial texts; utilization of bilingual technical dictionaries.

0201. Intermediate Russian. Cr. 4.

Prereq: RUS 0103 or equiv. Structure, particularly syntax, based on reading. Oral and written practice.

0208. Informal Russian Conversation. Cr. 1 (Max 2).

Prereq: RUS 0102 or equiv. No credit toward fulfillment of foreign language group requirement. No credit for Russian majors. Offered for S and U grades only. Informal conversation.

0245. Language Skills: Speaking and Writing. Cr. 4.

Prereq: RUS 0201 or equiv. Structural features not mastered in beginning courses. Extends mastery of written and spoken Russian.

0302. Intermediate Russian. Cr. 4.

Prereq: RUS 0201 or equiv. Broader knowledge of Russian grammar and lexicon based on reading of Russian literature.

0303. Intermediate Russian. Cr. 4.

Prereq: RUS 0302 or equiv. Continuation of Russian 0302.

0380. Introduction to Russian Literature. Cr. 4.

Prereq: 20 credits in language courses or equiv. Introduction to the major genres. Various critical approaches leading to the development of techniques of analysis.

0409. Language Skills: Applied Grammar and Syntax I. Cr. 4.

Prereq: RUS 0201 or equiv. or consent of instructor. Russian as a language system: phonology, morphology, word formation.

0410. Language Skills: Applied Grammar and Syntax II. Cr. 4.

Prereq: RUS 0409 or consent of instructor. Russian as a language system: phrase and sentence types.

0445. Language Skills: Advanced Speaking and Writing. Cr. 4.

Prereq: RUS 0245 or consent of instructor. Intensive practical training in use of Russian idiom to achieve fluency of expression.

0460. Survey of Nineteenth Century Russian Literature. Cr. 4.

Prereq: RUS 0380 or consent of instructor. From precursors of Pushkin to Chekhov's death.

0530. Survey of the Era of Transition in Russian Literature: 1880-1917. Cr. 4.

Prereq: RUS 0460 or equiv. The Silver Age of Russian literature from Chekhov to the October Revolution.

0550. Survey of Russian Literature Through the Eighteenth Century. Cr. 4.

Prereq: RUS 0380 or consent of instructor. Open to majors and non-majors. Major works and authors from the *Slavo* to 1800.

0551. Study of Russian Culture. Cr. 4.

Open to majors and non-majors. Basic features of Russian's cultural heritage. Specific characteristics of the developments and interconnections of institutional forms of oral and written literature and arts.

0560. Survey of Twentieth Century Russian Literature. Cr. 4.

Prereq: RUS 0380 or consent of instructor. Russian prerevolutionary and Soviet literature, 1890 to present.

0590. Directed Study. Cr. 2-4 (Max. 12).

Knowledge of Russian required. Undergrad. prereq: written consent of chairman; grad. prereq: written consent of chairman and graduate officer. For students who wish credit for program of work not included in regularly scheduled courses, either in language or in literature.

0660. Soviet Literature. Cr. 4.

Prereq: RUS 0460 or equiv. Russian literature in the Soviet period: conformism and deviation.

0661. Russian Poetry. Cr. 4.

Prereq: RUS 0380 or consent of instructor. Introduction to Russian poetry of the nineteenth and twentieth centuries, major schools and representative poets, and Russian poetics.

0665. Russian Literature and Social Forces. Cr. 4.

Prereq: RUS 0460 or equiv. Social background of the development of Russian literature. The works and impact of Radischev, Belinsky, Chaadaye, and others.

0709. Structure of Modern Russian I. Cr. 4-8.

Prereq: RUS 0410 or consent of instructor. Selected topics in phonology and morphology. Topics to be announced in *Schedule of Classes*.

0710. Structure of Modern Russian II. Cr. 4-8.

Prereq: RUS 0709 or equiv. or consent of instructor. Selected topics in word formation and derivation; syntax.

0720. Genre in Russian Literature. Cr. 4 (Max. 12).

Prereq: RUS 0460 or consent of instructor. Development of a literary form; poetry, or short story and novella, or drama; emphasis on major exponents of the form. Topics to be announced in *Schedule of Classes*.

0765. Old Russian. Cr. 4.

Prereq: SLA 0655. Development of modern Russian language, beginning with Church Slavic, up to the fifteenth century.

0770. Major Russian Writers and Their Times. Cr. 4 (Max. 12).

Prereq: RUS 0460 or equiv., or consent of instructor. Pushkin, or Dostoyevsky and Tolstoy, or Blok, or Pasternak; major works; contemporaries; impact on development of Russian literature. Topics to be announced in *Schedule of Classes*.

0799. Master's Essay Direction. Cr. 4.

Prereq: consent of adviser.

0870. Seminar in Russian Language. Cr. 4.

Prereq: consent of instructor. Open only to graduate majors with sufficient background preparation for the topic of the seminar. Specific topics in Russian linguistics: phonology, morphology or syntax. Topics to be announced in *Schedule of Classes*.

0871. Seminar in Russian Literature. Cr. 4.

Prereq: consent of instructor. Open only to graduate majors with sufficient background preparation for the topic of the seminar. Specific topics, such as literary movements, authors or group of authors, to be announced in *Schedule of Classes*.

Slavic (SLA)

0565. Survey of Slavic Culture. Cr. 4.

Prereq: course in East European area, or consent of adviser or instructor. Extra work required of graduate students. Slavic peoples and their heritage in arts, literature, music, folklore. The common Slavic element, its contribution to world culture.

0655. Slavic Languages: History and Development. Cr. 4.

Prereq: at least one course in linguistics or consent of instructor.

0665. Slavic Romanticism and Its Connections with the West.
Cr. 4.

Origins and expansion of Romantic movement in Slavic literatures; Western impacts: distinctive features and adaptations.

0692. Selected Topics in Slavic Studies. Cr. 4 (Max. 12).

Prereq: consent of chairman. Topics to be announced in *Schedule of Classes*.

0711. Advanced Language Training. Cr. 2-4 (Max. 12).

Prereq: demonstrated reading competence in one language of East European area. Open only to majors in East European studies. Training for reading in one or more languages of East European area, primarily as a research tool in fields of specialized research.

0798. Seminar in East European Problems: Languages and Literatures. Cr. 4.

Open only to majors in East European studies.

0899. Master's Thesis Research and Direction. Cr. 2-12 (12 required).

Open only to majors in East European studies. Prereq: consent of adviser.

Ukrainian (UKR)

0101. Elementary Ukrainian. Cr. 4.

Sounds, spelling, vocabulary, forms, syntax as basis for reading and conversation.

0102. Elementary Ukrainian. Cr. 4.

Prereq: UKR 0101 or equiv. Continuation of Ukrainian 0101.

0103. Elementary Ukrainian. Cr. 4.

Prereq: UKR 0102 or equiv. Continuation of Ukrainian 0102.

0201. Intermediate Ukrainian. Cr. 4.

Prereq: UKR 0103 or equiv. Study in depth of structure, particularly syntax, based on reading. Oral and written practice.

0302. Introduction to Ukrainian Literature: Twentieth Century. Cr. 4.

Prereq: UKR 0201 or equiv. Readings of short stories, poetry and essays of representative authors. (Former UKR 0202)

0303. Introduction to Ukrainian Literature: Nineteenth Century. Cr. 4.

Prereq: UKR 0302 (former 0202) or equiv. Readings of short stories, poetry and essays of representative authors. (Former UKR 0203)

0450. Ukrainian Literature of the Nineteenth Century. Cr. 4.

Prereq: UKR 0303 or equiv. Classicism, Romanticism, Realism and Impressionism; their foremost representatives; social and political background.

0460. Survey of Contemporary Ukrainian Literature. Cr. 4.

Prereq: UKR 0303 or equiv. Symbolism, futurism, neo-classicism; literature during and after the revolution; current trends.

0590. Directed Study. Cr. 2-4 (Max. 12).

No graduate credit. Prereq: UKR 0303 or equiv.; written consent of chairman. For students who wish credit for program of work not included in regularly scheduled courses, either in language or in literature.

SOCIAL SCIENCE

Office: 232 Library Court

Director: James B. Christensen

INSTRUCTORS

Victor K. Ametewee, Gerald M. Anderson, Elsie F. Brous, Benedict M. Jozefowicz, Jon C. Swanson

The Social Science courses 0191 and 0192 offer an integrated presentation of basic materials in the fields of anthropology, sociology, political science, economics, and social psychology. Problems are selected for discussion that will be conducive to scientific thinking about social issues.

The courses are designed primarily for students who intend to enter professional schools in their junior year, but they may be elected in partial fulfillment of the Social Science Group Requirement by other students. Social Science 0191 together with 0192 satisfies the University requirement in American government.

COURSES OF INSTRUCTION¹ (S S)

0191. Contemporary Society. Cr. 5.

Introduction to the methods and viewpoints of social science, to include a consideration of culture, society, population, social stratification, ethnic relations, personality formation, marriage, education and religion. These areas will be approached from an anthropological, sociological and social-psychological orientation.

0192. Contemporary Society. Cr. 5.

Introduction to the historical development of prominent economic and political philosophies supplemented by a description of how these systems operate in the contemporary world.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

SOCIOLOGY

Office: 100 Library Court

Chairman: J. Ross Eshleman

PROFESSORS

Joseph Albini, John B. Biesanz (Emeritus), H. Warren Dunham (Emeritus), J. Ross Eshleman, Frank E. Hartung, Edward C. Jandy (Emeritus), Eva Kahana, Donald C. Marsh (Emeritus), Mel J. Ravitz, Constantina Safilios-Rothschild, Leon H. Warshay, Eleanor P. Wolf

ASSOCIATE PROFESSORS

Edmund G. Doherty, Thomas J. Duggan, Stanley S. Guter-
man, Ruth A. Rosen, Mary C. Sengstock

ASSISTANT PROFESSORS

Lonnie H. Athens, Bronislaw Bajon, Carl F. Butts, Guy A. Dalto, James Dowd, Stanley Kupinsky, Stephen W. Mamchur, Robert G. Newby, Shirley A. Nuss, Ann W. Sheldon, Morton G. Wenger

ADJUNCT ASSOCIATE PROFESSOR

Greer Litton-Fox

DEGREE PROGRAMS

Bachelor of Arts — with a major in sociology

Bachelor of Arts — with a major in anthropology and sociology

Master of Arts — with a major in sociology

Doctor of Philosophy — with a major in sociology

The courses in sociology are designed for various groups of students: (1) those desiring scientific knowledge of social relationships as a part of their general equipment for living; (2) those planning to enter a public service profession such as nursing, medicine, dentistry or law; (3) those expecting to engage in a form of public relations work that will require a broad grasp of the nature of society, of public opinion, and of social change; (4) those anticipating a career in social and statistical research and planning; (5) those looking forward to the teaching of social studies and sociology; (6) those preparing for a career in international studies or for service in foreign affairs; (7) those majoring in sociology as a preparation for graduate professional training in social work; (8) those planning to pursue graduate studies in sociology.

Students who plan to enter public relations, mass communications, social research, social planning, statistical analysis, or the teaching of social studies should consult with staff members for guidance.

Merrill-Palmer — Cooperative arrangements with the Merrill-Palmer Institute permit qualified students to obtain a major

concentration in family studies. This program is limited to graduate students. Details are available from the department chairman.

BACHELOR OF ARTS

It is expected that Group Requirements will be fulfilled during the freshman and sophomore years. Language Group Requirements should normally be fulfilled before election of the major.

Honors — A number of sections have been designated as Honors sections, providing smaller classes, somewhat more advanced reading, and opportunities for independent work by students. Admission requires a 3.0 over-all average and consent of the department. Students earning an over-all grade point average of 3.0 and a grade point average of 3.5 in the department may be recommended for Alpha Kappa Delta, national honorary society in sociology. The Norman Daymond Humphrey Memorial Award is granted annually to those students admitted to Sigma Xi and Phi Beta Kappa.

With a Major in Sociology

Students are urged to include as many of the following courses as possible during the freshman and sophomore years: Anthropology 0210; astronomy or geology; biology; Economics 0101; Geography 0110; History 0110; Philosophy 0101; Political Science 0101; Psychology 0198; Sociology 0201 and 0202; Statistics 0102.

Major Requirements — Students majoring in sociology are required to elect a minimum of forty-four credits in the field, including Sociology 0201 or Social Science 0191-0192*, Sociology 0202, 0400, 0460, 0430** (or 0630 or 0631). Students may not elect more than sixty-eight credits in course work within the department.

Recommended Cognate Courses — The following subjects are suggested as cognate electives. It is recommended that not less than twelve credits be selected from the list: Anthropology 0210, 0519, 0520, 0535, 0536, 0537, 0606, 0617, 0631, 0633, 0638, 0639; Economics 0102, 0584; Geography 0220, 0613, 0614, 0624; History 0105, 0120, 0130, 0204, 0205, 0513; Political Science 0201, 0208, 0520, 0533, 0582; Psychology 0301, 0330, 0430, 0550, 0565, 0635. Undergraduates who plan graduate study in sociology are encouraged to elect the General Mathematical Analysis sequence (Mathematics 0500, 0501, 0502, and 0503).

With a Major in Anthropology and Sociology

Major Requirements — Students majoring in anthropology and sociology are required to take Anthropology 0210, 0211, 0520, 0527, 0531 and 0638 or 0639, Sociology 0201 or Social Science 0191-0192, Sociology 0202, 0400, 0430 and 0460 or

* Sociology majors or majors in combined anthropology-sociology may not count both Sociology 0201 and Social Science 0191-0192 as part of their forty-four credit requirement. Those who elect Social Science 0191-0192 will receive four credits toward their major unless, at the discretion of the department, they are required to take Sociology 0201; in such case, the 0191-0192 sequence shall count only toward the Social Science Group Requirement.

** Students who have taken Sociology 0530, 0642 or 0643 (formerly offered) fulfill the requirement for Sociology 0430.

0630 or 0631. A total of at least twenty-eight credits in sociology and twenty-eight credits in anthropology must be completed, but not more than sixty-eight credits in the combined fields may be elected.

Model Plan for Majors is as follows:

Junior Year

Sociology 0430, 0460, 0502, 0408 (or 0630 or 0631); Philosophy 0120, 0130; Statistics 0102; elective courses

Senior Year

Sociology 0400, 0506, 0514, elective or Honors courses

MASTER OF ARTS

Plan A — Thirty-six credits in course work plus a thesis.

Admission — Effective with the 1972-73 academic year, applicants are admitted three times a year — in fall, winter, and spring quarters. Deadline for applications are May 15, November 15, and February 15, respectively. The materials required for admission are: (1) Transcripts of all previous collegiate work, (2) The *Application for Graduate Admission*, with all the required information supplied. Materials (1) and (2) must be mailed to the Office for Graduate Admissions. (3) Letters of recommendation from three endorsers, at least two of them must be in academic occupations. The letters of recommendation should be mailed to: Chairperson, Graduate Committee, Department of Sociology. Transcripts (1, above) must be mailed directly from the previously attended college or university to the Office for Graduate Admissions of this University. Forms for applications and letters (2 and 3, above) can be obtained from the Chairperson, Graduate Committee, Department of Sociology. (4) Both the aptitude and advanced (Sociology) portion of the Graduate Record Examination are required of all applicants.

A grade point average of at least 3.3 in upper division courses, and in courses in sociology, is required for admission. An undergraduate major in sociology is not an absolute requirement for admission, but an applicant should have a substantial background in sociology.

The following courses, or their equivalent, must have been taken before the student can be considered for admission: Sociology 0201, 0202, 0400, 0430 (or 0630 or 0631) and 0460.

Candidacy must be established by the time twenty credits have been earned.

Degree Requirements — All students are required to maintain a B (3.0) average. A grade of C in two courses will be sufficient reason to dismiss a student from the graduate program. There must be thirty-six credits in sociology and related fields, including Sociology 0701, 0787, and two graduate seminars. The thirty-six credits must also include the following courses, if the student has not taken them as an undergraduate: Sociology 0602 and either 0630 or 0631. A final written or oral examination is required in sociology at the option of the department.

Plan C — Forty-eight credits in course work and demonstration of research competence and examination.

Admission — Available only to doctoral applicants and awarded, on application, to qualified students successfully pursuing work for the Ph.D. in sociology. Consult the department chairman for further details.

DOCTOR OF PHILOSOPHY

Admission — Only a limited number of applicants who have demonstrated superior ability and capacities for critical and creative research can be accepted. A master's degree or its equivalent is prerequisite, but will not in itself constitute evidence of aptitude for doctoral work.

Admission to the doctoral program is made once a year. The deadline for application is February 15. Applicants are notified of decisions by March 15. Those accepted must notify the Chairperson of the Graduate Committee by April 15 if they are going to enroll in the fall quarter. Applicants should have an average of 3.5 in the M.A. work and at least a 3.5 average in the aggregate of their methods and theory course requirements. The following courses, or their equivalent, must have been taken before the student can be considered for admission: Sociology 0201, 0202, 0400, 0430 and 0460 (or 0630 or 0631). Finally, both the aptitude and advanced (Sociology) portion of the Graduate Record Examination are required.

The Department requires three recommendations (one of these from the student's adviser) in addition to the transcripts and other materials required by the Graduate Division. The recommendation forms may be secured from the department office, 100 Library Court. The completed forms are to be returned to the Chairperson of the Graduate Committee, Department of Sociology. These recommendations must be submitted at the same time the admissions form is submitted. For more detailed information see the Master of Arts admissions statement above.

Degree Requirements — All students are required to maintain a B (3.0) average. A grade of C in two courses will be sufficient reason to dismiss a student from the graduate program. All doctoral students must take or have had: Sociology 0602, 0603, 0604, 0630, 0631, 0701, and 0787. Qualifying examinations for doctoral applicants will cover four of the major areas in sociology. One of these must be in methodology, one must be in sociological theory and one may be in a cognate area outside the field of sociology. Doctoral applicants are required to have three successive quarters in residence as full-time students as defined by the Graduate Division. If residence requirements are not met within two calendar years, the student will be dismissed from the doctoral program. A detailed description of the doctoral program, including specific requirements, is available in *General Information for Doctoral Students in Sociology* which may be obtained from the department on request.

All doctoral students in this department are required to engage in teaching or research as a condition precedent to qualifying for a degree.

Assistantships — A limited number of assistantships are available each year. Awards of such assistantships are normally made on or about March 15 for the forthcoming academic year commencing in September. Application for assistantships must be completed no later than February 15. Consult the department chairman for further details.

COURSES OF INSTRUCTION¹ (SOC)

0201. Introduction to Sociology. Cr. 4.

Prereq: sophomore standing. Structure and functions of society and culture through consideration of important generalizations and concepts.

0202. Social Problems. Cr. 4.

Prereq: SOC 0201 or SS 0191-0192. Dynamic concepts, including social change, value conflicts and social deviation expanded through analysis of contemporary social problems, such as mental and emotional disorders, family tensions, ethnic and class hostilities, political corruption, economic dislocations.

0300. Social Institutions. Cr. 4.

Prereq: SOC 0201 or SS 0191-0192. Institutions as patterned organization of purposive behavior.

0390. Directed Study. Cr. 2-4 (Max. 8).

Prereq: written consent of full-time sociology instructor. Open to juniors and seniors with not less than sixteen credits in sociology, with a grade of A or B. For student who shows evidence of ability and interest and who desires to do advanced reading. Part-time and student instructors are not eligible to supervise directed study.

0400. Methods of Empirical Social Research (S W 0745). Cr. 4.

Prereq: SOC 0201 or SS 0191-0192. Questionnaire construction; interviewing; sampling; experimental controls; interpretation of data.

0408. Race Relations in the United States. Cr. 4.

Prereq: SOC 0201 or SS 0191-0192. Social and cultural factors in black-white conflict and adjustment situations, race as caste, the Negro in the United States and Detroit.

0413. Sociology of Religion. Cr. 4.

Prereq: SOC 0201 or SS 0191-0192. Objective analysis of the interrelations between religious phenomena and social institutions, social structure and behavior.

0430. Basic Sociological Theory. Cr. 4.

Prereq: SOC 0202. Analysis of sociological theory from a general conceptual framework; major concepts and theoretical positions in sociology since 1930; pre-1930 theorists; their contributions to recent trends in sociological theory.

0460. Social Psychology. Cr. 4.

Prereq: PSY 0198 and SOC 0201 or SS 0191-0192 or ANT 0210. Social-psychological phenomena in human conduct and group life from viewpoint of symbolic interaction.

0490. Honors Program in Sociology. Cr. 2-8 (Max. 20).

Prereq: junior standing; 3.0 h.p.a.; 3.3 h.p.a. in department; 18 credits in sociology; consent of chairman. For superior students

who can pursue independent program of research and studies. Student reports on progress of work at bi-weekly pro-seminar meetings.

0501. Selected Sociological Topics. Cr. 2-4 (Max. 12).

Prereq: SOC 0201 and 0202 or SS 0191-0192. Topics to be announced in *Schedule of Classes*.

0502. Urban Sociology (U P 0502). Cr. 4.

Prereq: SOC 0201 or SS 0191-0192. Ecological and social organization of city life. Metropolitan trends in the United States, social problems created by it, various forms of control.

0506. The Family. Cr. 4.

Prereq: SOC 0201 or SS 0191-0192. Viewpoints of social psychology and cultural anthropology; American family, family and personality, universal patterns, cultural differentiation, changes and programs for reconstruction.

0507. Sociology of Human Sexual Behavior. Cr. 4.

Prereq: SOC 0201. Sexual behavior from a cross-cultural point of view; historical development and findings of research in the area of sociological factors related to human sexual behavior.

0510. Ethnic Groups in the United States. Cr. 4.

Prereq: SOC 0201 or SS 0191-0192. Immigrants in United States society; problems of immigrants in American life; the processes of adjustment and assimilation. Theories of adjustment: anglo-conformity, the melting pot, social and cultural pluralism.

0511. (P S 0511) Public Opinion and the Political Process (U P 0535). Cr. 4.

Prereq: SOC 0201, P S 0101, 9 credits in social sciences; or consent of adviser. Role of public opinion in the political system. Factors important in the formation of political opinions; assessment of the consequences of the opinions of mass and specialized publics for the political decision-making process.

0514. Social Stratification. Cr. 4.

Prereq: SOC 0201 or SS 0191-0192. Empirical and theoretical treatment of caste, class, status; their impact on personality, ethnic relations, political power.

0515. The World of the Blue Collar. Cr. 4.

Prereq: SOC 0514, or consent of instructor. The nature and significance of the American blue collar workers' worlds in modern society. Central focus is on his worlds outside of work. Some attention is paid to work as it is related to unemployment and retirement.

0516. Sociology of Leisure. Cr. 4.

Prereq: SOC 0201 or SS 0191 and 0192. Trends in available leisure hours and possible future developments; relationships of leisure activities to major social roles and to social class and occupation.

0519. Industrial Sociology. Cr. 4.

Prereq: SOC 0201 or SS 0191-0192 or consent of instructor. Sociological aspects of work as related to facets, conditions, consequences of industrialism, examined comparatively. (Former SOC 0416)

0540. Sociology of Crime (CRJ 0536). Cr. 4.

Prereq: SOC 0201 or SS 0191-0192 or ANT 0210. Theories of causation of crime and treatment of convicted adult offender with reference to history and philosophy of punishment, operation of prison systems, probation and parole.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

0541. Juvenile Delinquency. Cr. 4.

Prereq: SOC 0201 or SS 0191-0192 or ANT 0210. Significant researches into nature, incidence, etiology, treatment, prevention, from Lombroso to present. (Formerly Sociology 0340.)

0542. The American Correctional System. Cr. 4.

Prereq: SOC 0540 or 0541 and consent of instructor. History and philosophy of punishment; the development and present functioning of correctional institutions; recent trends in corrections. A minimum of three field trips required.

0543. Theory of Probation and Parole (CRJ 0538). (4,1). Cr. 4.

Prereq: SOC 0340 or 0540. Theories, current practices, field techniques. Projected plans evaluated. Emphasis on case materials.

0550. Marriage and Family Problems. Cr. 4.

Prereq: SOC 0201. Factors in problems in parent-child and inter-spousal relationships. Research, education, counseling, legislation, cultural reconstruction relevant to treatment or prevention.

0569. Sociology of Sex Roles. Cr. 4.

Prereq: SOC 0201. Social psychological approaches to the development of sex identity. Sex as caste. Impact of contemporary changes in sex roles on individual behavior and social organization.

0570. Organizations: Structure and Process. Cr. 4.

Prereq: SOC 0202 or consent of instructor. Structures of formal organizations, as determined by overt purposes and covert functions, nature of recruitment, socialization process, and relations to other structures within society. (Former SOC 0670)

0571. Collective Behavior. Cr. 4.

Prereq: SOC 0460. Such topics as crowds, mobs, manias, panics, fashions, fads, social movements, reforms, revolutions. Public opinion and propaganda as related to these phenomena.

0580. Population and Modern Society (S W 0718). Cr. 4.

Prereq: ECO 0101 or SOC 0201 or SS 0191-0192 or consent of instructor. Economic and social significance of world population trends; their changing composition in relation to labor supply, standard of living and markets; national policies affecting population.

0599. Sociology of War and Peace. Cr. 4.

Prereq: 16 credits in any of the following — sociology, anthropology, economics, political science, psychology or history. Conflict between societies; effects of war and peace on social structure; how societies prepare for war and peace; analysis of causes of war; various definitions of war and peace within the context of sociological definitions of conflict.

0601. Survey of Sociological Principles. Cr. 4.

Prereq: 8 credits in the humanities or social sciences. Not open to majors. Sociological principles applied to areas important to contemporary social science; current theories under debate within the discipline; usefulness of sociology to other disciplines.

0602. Social Statistics (S W 0746). Cr. 4.

Prereq: consent of instructor. Probability and statistical inference; descriptive statistics; contingency tables; partialing; measures of association; simple correlation.

0603. Multivariate Parametric Statistics. Cr. 4.

Prereq: SOC 0602. Multiple and partial correlation, multiple regression, factor analysis, simpler forms of path analysis, limited non-parametric correlational techniques, some attention to computer procedures for performing these techniques.

0604. Multivariate Non-Parametric Analysis. Cr. 4.

Prereq: SOC 0603. Variance; covariance; advanced treatment of effects within multi-dimensional contingency tables and associated tests of significance. Non-parametric alternatives to multivariate parametric procedures.

0605. Qualitative Methods of Sociological Research. Cr. 4.

Prereq: SOC 0400 or equiv.; junior, senior or graduate standing; major in sociology or related fields. Basic assumption and logic or qualitative inquiry; nature of qualitative (i.e., non-numerical) methods and procedures; their use in sociological research.

0606. (ANT 0606) Urban Anthropology (U P 0531). Cr. 4.

Prereq: ANT 0210, 0520, or consent of instructor. Socio-cultural effects of urbanization in the developing areas of the world, particularly: Africa, Latin America, Southeast Asia and India. The process of urbanization; the anthropological approach in the area of urban studies.

0608. Advanced Survey of Race and Ethnic Group Relations. Cr. 4.

Prereq: graduate standing or SOC 0408. Race and ethnic group relations in the United States; comparative perspective. (Former SOC 0614)

0611. Sociology of Knowledge. Cr. 4.

Prereq: SOC 0430 or 0630. Socio-cultural conditions underlying man's knowledge and its employment. Foundations of myth, ideals, ideologies, other "thoughtways" in the societal process. Significant contributors to field.

0612. Sociology of the Arts. Cr. 4.

Prereq: one course in sociology or equiv. Social and cultural factors in background and development of arts. Examples from architecture, visual arts, music, literature. Techniques and theoretical approaches.

0613. Sociology of American Labor. Cr. 4.

Prereq: SOC 0201, or SS 0191-0192 or consent of instructor. Theory of working class organization; history of the development of industrial working organizations; unions and bureaucracy; white collar unionism; perspectives for the future of American unionism.

0615. Political Sociology. Cr. 4.

Prereq: SOC 0460 and PS 0101 or consent of instructor. Relationships between political and other social phenomena. Factors influencing political structure including social class, economic problems, religious affiliations, military power. The contributions of sociological theories.

0617. Sociology of Work and Occupations. Cr. 4.

Prereq: SOC 0519 or 0570 or consent of instructor. Analysis of work and occupations in the United States and other countries from four perspectives: historical, social-psychological, structural-functional, and conflict of interest. Consideration of women and blacks, problems of non-work, illegal work and occupations.

0618. (ANT 0618) Theory and Problems of Emergent Countries. Cr. 4 (Max. 8).

Prereq: SOC 0201 or SS 0191-0192 or ANT 0210. Underdeveloped and developing countries. Emergent nationalism and socio-cultural factors affecting change. Cultural, demographic, institutional, technological aspects.

0620. Social Change and Social Planning (U P 0642). Cr. 4.

Prereq: consent of adviser. Theories of social change; possibilities and limitations of social planning. History of outstanding planning experiments; case studies from industry, government, community

planning. Social techniques aimed at promoting or resisting planned social change. Field trips in Detroit industry, government planning departments.

0622. Economic Sociology. Cr. 4.

Prereq: SOC 0201 or SS 0191-0192. Sociological analysis of economic systems, their development and processes; the corporation as an institution and its growth and influence in the total society; relationship between economic structure, social class, and social change.

0625. Family Sociology: Theories and Research. Cr. 4.

Prereq: two sociology courses, one in social psychology or theory. Major sociological theories relevant to the study of the family combined with a comprehensive survey of family research. Existing theories tested in the light of available research.

0628. (TBF 6628) Sociology of Urban Schools. Cr. 3-4.

Prereq: consent of adviser. Societal and institutional problems and processes bearing on the education of the culturally-different child.

0629. Formal Organizations in Society. Cr. 4.

Prereq: SOC 0519, 0570 or consent of instructor. Analysis of interrelations among organizations and their effects upon society and its various segments. External aspects of organizations. (Former SOC 0520)

0630. Sociological Theory before 1920. Cr. 4.

Prereq: 20 credits in sociology. Sociological theorists before 1920, their thought and the historical context in which it is developed.

0631. Sociological Theory since 1920. Cr. 4.

Prereq: 20 credits in sociology. Historical and theoretical analysis of sociological thought in the present century; current trends in sociological theory.

0640. Technology and Society. Cr. 4.

Prereq: SOC 0201 and at least four additional credits in sociology. Several bodies of literature giving understanding of the sequences of technology and technological change on the structure of occupations, organizations and societies.

0644. Sociology of Age Stratification. (4,0). Cr. 4.

Prereq: SOC 0201 or equiv. Stratum-defining characteristics of age, the effects of membership in a particular age-stratum on attitudes and behavior, and the ways in which society must accommodate itself to the continually changing patterns of cohort structure.

0646. Dynamics of Social Action (UP 0645). Cr. 4.

Prereq: SOC 0202 or consent of instructor. Nature, theory, forms of social action in American society; organization and planning for social action; relationship of social action and social change.

0650. Personality and Social Structure. Cr. 4.

Prereq: 16 credits in sociology and/or psychology including an introductory social psychology course. Interrelations of personality and social systems.

0651. Social Psychology of Social Inequality. Cr. 4.

Prereq: graduate standing or four courses in sociology or psychology. Social class differences, racial differences, and sexual differences in child-rearing, modal personality, characteristics and cognitive performances. Theoretical approaches.

0654. Organized Crime: Its History and Social Structure (CRJ 0637). Cr. 4.

Prereq: SOC 0540. Open only to juniors, seniors and graduates. Analysis of the history and social structure of organized crime;

contemporary national and international forms of criminal enterprises. (Former SOC 0544)

0656. Sociology of Law. Cr. 4.

Prereq: SOC 0201 or SS 0191-0192 or ANT 0210. Law and the legal structure in its social context; reciprocal effects of law and the society in which it develops; comparative analysis with emphasis on the Anglo-American legal system. (Former SOC 0546)

0660. Advanced Survey of Social Psychology. Cr. 4.

Prereq: graduate standing; or 16 credits in sociology or psychology, including an introductory social psychology course; or consent of instructor. In-depth survey of substantive topics within social psychology. Contemporary issues, research findings and trends concerning such topics as group dynamics, self and personality, socialization, attitude formation and change, perception.

0666. Sociology and Social Psychology of Abnormal Behavior. Cr. 4.

Prereq: PSY 0330 or 0430 and 0360 or SOC 0460; or consent of instructor. Sociological and social psychological theory and research dealing with the development of functional mental disorders and other forms of abnormal behavior, their careers, treatment, and outcome. Interrelationships in anthropology, sociology, psychology, and psychiatry.

0671. Introduction to Medical Sociology. Cr. 4.

Prereq: SOC 0201 or SS 0191-0192; or consent of instructor. Sociological approach to the incidence of disease; the patterns of its treatment by the medical and para-medical professions. Topics to be announced in *Schedule of Classes*.

0672. Sociology and Social Psychology of Disability and Rehabilitation. Cr. 4.

Prereq: an undergraduate course in sociology or consent of instructor. Social and socio-psychological factors determining the type of "career" the disabled follow from health through illness, disability, rehabilitation and after rehabilitation. The physician and patient role in the disability and rehabilitation models.

0673. Sociology of Aging. Cr. 4.

Prereq: consent of instructor. Sociological and socio-psychological theories in gerontology; review of social science literature associated with adjustments in aging.

0674. Sociology of Institutional Care. (3,1). Cr. 4.

Undergrad. prereq: SOC 0671 or 0673 or consent of instructor. Converging issues of theory, research, and practice in general hospitals, mental hospitals, and nursing homes. Ecology of institutions and the adaptation of individuals within them.

0700. Scientific Study of Society. Cr. 2-4.

Prereq: consent of instructor. Central concepts and principles of sociological theory. Place of sociology in the social sciences.

0701. Advanced Techniques of Social Research. Cr. 4.

Prereq: consent of instructor. Experimental design, sampling methods, questionnaire construction. Major emphasis on developing a research proposal and methodology.

0702. Problems of Urban Society (UP 0702). Cr. 2-4.

Prereq: consent of instructor. Application of social science research; theories underlying different approaches to applied sociology; value assumptions of planning commissions and administrative agencies.

0703. Urban Stratification and Power Structure (UP 0725). Cr. 4.

Prereq: consent of instructor. Social class and power structure in

metropolitan community; approaches to the study of community power and decision-making with emphasis on the processes of urban planning.

0704. (PS 0734) Administrative Aspects of Urban Planning (UP 0735). Cr. 4.

Prereq: consent of adviser. Goals and policy structure for urban planning, regional planning, zoning and related administrative problems.

0705. Comparative Sociology of Fertility and Family Planning. Cr. 4.

Prereq: one course on the family or on demography or equiv. Cross-cultural examination of the social and socio-psychological factors affecting fertility as well as the outcome of family planning programs in developing countries. Research studies on fertility and research evaluation studies of family planning.

0720. The Urban Community and Families. Cr. 3.

Prereq: consent of instructor. Community life in urban centers in relation to the life of families. Trends in American cities, community change and ways of bringing it about.

0721. Survey and Evaluation of Research on the Family. Cr. 3.

Prereq: consent of instructor. Selected research studies of the family; emphasis on research findings; research methods used; and the kind of further research that may be needed.

0731. Seminar in Urbanism, Development and Change. Cr. 4.

Prereq: four courses in sociology, preferably SOC 0502, 0519 or 0580; or consent of instructor. Comparison and contrast of predominant theories relevant to urbanization, development and change.

0760. Seminar in Social Psychological Theories. Cr. 4.

Prereq: graduate standing, or 20 credits in either sociology or psychology, or consent of instructor. Early and current theories and their implications — social, personal, methodological, and philosophic.

0770. Seminar in Organizational Systems. Cr. 4.

Prereq: graduate standing, SOC 0519, 0570, and 0629, or graduate level course work in industrial psychology, public administration or School of Business Administration or consent of instructor.

0771. Seminar in the Sociology of Women. Cr. 4.

Prereq: graduate standing in sociology or consent of instructor. Cross-cultural and historical analysis of the role of women in society.

0773. Sociology of Women and Medicine. Cr. 4.

Prereq: SOC 0569 or equiv. Women in relation to the American health care system as patients, health care workers, medical research subjects and activists working toward change in medical policies and practices.

0777. The Intellectual and Society. Cr. 4.

Origins, roles, status, and influences of intellectuals in different types of societies.

0780. Seminar in Theories of Social Movements and Revolutions. Cr. 4 (Max. 12).

Prereq: at least one course in sociology, psychology, or social psychology. Sociological and social-psychological theories of the origins and career patterns of social movements and revolutions. Topics to be announced in *Schedule of Classes*.

0781. Seminar in Field Studies. Cr. 4 (Max. 12).

Designed to stimulate social research in Detroit area. Reports on current research. Topics to be announced in *Schedule of Classes*.

0782. Seminar in Criminological Theory (CRJ 0778). Cr. 2-4 (Max. 8).

Prereq: introductory course in the particular field, and consent of instructor.

0784. Seminar in Problems of Social Psychology. Cr. 2-4 (Max. 8).

Prereq: elementary course in particular field; consent of instructor.

0786. Seminar in Problems in Sociological Methodology. Cr. 2-4 (Max. 8).

Prereq: one course in methods and in statistics; consent of instructor.

0787. Seminar in Sociological Theory. Cr. 2-4 (Max. 8).

Prereq: SOC 0630 or 0631 or equiv. Major positions, theories, problems.

0788. Seminar in Theories of Social Stratification. Cr. 4.

Prereq: SOC 0514 or consent of instructor. Sociological and social psychological theories of social stratification. Consideration given to theories of stratification in preliterate and preindustrial societies as well as in industrial societies.

0790. Directed Study. Cr. 2-10 (Max. 10).

Prereq: consent of adviser and graduate officer. Not open to doctoral candidates.

0796. Research Problems. Cr. 2-8 (Max. 8).

Prereq: consent of adviser.

0899. Master's Thesis Research and Direction. Cr. 2-12 (12 required).

Prereq: consent of adviser.

0990. Directed Study. Cr. 2-10 (Max. 10).

Prereq: consent of adviser and graduate officer.

0999. Doctoral Dissertation Research and Direction. Credits to be arranged.

Prereq: consent of doctoral adviser.

SPEECH COMMUNICATION, THEATRE AND JOURNALISM

Office: 585 Manoogian Hall

Chairman: Edward J. Pappas

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COOPERATING FACULTY, DEPARTMENT OF AUDIOLOGY, SCHOOL OF MEDICINE

John H. Gaeth, George E. Lynn, Doris V. Allen, Robert H. Brey, Dale O. Robinson

DEGREE PROGRAMS

Bachelor of Arts — with a major in speech

*Bachelor of Arts — with a major in mass
communications*

Bachelor of Fine Arts — with specialization in theatre

Master of Arts — with a major in speech

Master of Arts in Teaching College Speech

Master of Fine Arts — with specialization in theatre

*Doctor of Philosophy — with a major in speech and
specialization in communication, rhetoric, and public
address; communication disorders and sciences;
mass communications; oral interpretation; theatre;
audiology; or general speech.*

The primary aim of this department is to assist students in developing the ability to communicate effectively in a democratic society. With this end in view, the courses in the department are designed to serve several purposes.

First, for those who desire to improve their general communicative ability in any kind of social situation, Speech 0200—Effective Speech, is offered. If the work can be continued, courses may be elected in voice and articulation; public speaking, discussion and debate; oral interpretation; theatre; and radio, television, and film.

Second, for those who want considerable training in a specific type of professional speech, a sequential group of courses is offered in each of six fields: communication, rhetoric, and public address; communication disorders and sciences; audiology; oral interpretation; theatre; and mass communications.

Third, for those who want considerable training for future careers in communications in public and private organizations, a sequential group of courses is offered as background for the fields of community and public relations, training and industrial relations, government, and the mass media professions.

Fourth, for those who wish to prepare for the teaching of speech, programs which qualify students for high school and college teaching positions are offered.

Students who plan to teach speech at any level should consult departmental advisers regarding course elections.

Fifth, for those who desire to correct problems of voice, articulation, rhythm, language or dialect, therapy is available. For further information, contact the Speech and Hearing Center. Assistance is also available in clinical diagnosis and training for the hard of hearing through the Department of Audiology, School of Medicine.

For practical speech training and an opportunity to participate in activities, all students in the University are invited to take part in the following: intramural and intercollegiate debate and discussion, oratory, extemporaneous speaking, oral interpretation, the University Theatre, the group reading programs, Speech Clinic, Speech Laboratory, Radio and Television Workshops, Student Speakers' Bureau, and University Readers' Bureau.

Students intending to transfer should note that some institutions do not grant credit for speech when it is elected in the freshman year.

The Speech Department offers for the Bachelor of Arts degree a major in speech and a major in radio-television-film. Majors should note the wide opportunities for careers which

are mentioned above. For professional training in theatre, the department offers curricula leading to the degree of Bachelor of Fine Arts.

BACHELOR OF ARTS

With a Major in Speech

All students desiring to major in speech should consult the undergraduate adviser of the department. Although students do not officially elect a major prior to the junior year, advising in the department is available to freshmen and sophomores.

Major Requirements — It is expected that a major will complete at least thirty-eight credits and not more than sixty credits in the department, but a proper distribution of courses approved by the student's adviser is equally important.

It is desirable that students intending to major begin their work in speech in the freshman year, and that they include Speech 0200, 0204, 0210, 0211, and 0250, plus at least one course in one of the areas of communication disorders and sciences, audiology, theatre, and radio-television-film.

Majors taking the combined curriculum for secondary teaching with a major or minor in speech are required to take Speech 0200, 0204, 0210, 0211, 0250, 0506, and 0530. The same courses are strongly recommended for those preparing for secondary school teaching in the College of Education with major or minor concentrations in speech. Adequate preparation for directing two or three speech activities is expected. Those training to be elementary teachers with majors or minors in speech take Speech 0200, 0204, 0250, and 0507. Consult a departmental adviser for recommended electives beyond the core.

For the undergraduate student with some specialization in the area of theatre majoring in speech, it is recommended that he elect from the following courses: Speech 0260, 0261, 0263, 0264, 0268, 0269, 0461, 0463, 0464, 0465, 0466, 0502, 0559, 0562, 0564, 0565, 0567, 0569, 0660, 0663, 0667. Also see the Bachelor of Fine Arts degree program below.

For the undergraduate student who wishes to pursue specialization in the area of communication disorders and sciences, it should be understood that a master's degree is required for clinical certification by the American Speech and Hearing Association. Study in this major field at the undergraduate level is considered to be pre-professional and should include the following courses: Speech 0508, 0509, 0514, 0530, 0531, 0532, 0533, 0536, 0539, 0540, 0542, 0544, and 0630 (I, II, III).

With a Major in Mass Communications

This program is built around a core of courses that all majors must complete, to which are added courses in an area of specialization selected by the student.

Mass Communications majors must elect one of the following sequences: I. print journalism; II. public relations and

advertising; III. electronic journalism; IV. broadcast production; V. film studies.

Students selecting the print journalism sequence must take a second major or at least a concentration. The second major, or concentration, can be in any department in the liberal arts college. Political science, history, English, economics, humanities, sociology, and urban studies are preferable. The concentration should include at least twenty-four hours above the liberal arts and the journalism requirements.

Major Requirements:

1. The regular College of Liberal Arts requirements in English, foreign language and natural sciences.

2. A minimum of an additional total of twenty credits above the group requirements in social sciences and humanities. For all students except those in the film studies sequence, the social science requirement is to be met by taking the following:

	<i>credits</i>
<i>Social Sciences</i>	36
Economics 0101 — Survey of Economics I, or Economics 0102 — Survey of Economics II	4
Political Science 0101 — Introduction to American Government....	4
One other Political Science course, preferably 0201 — The Political Process in the Urban Setting	4
Two courses in World History	8
Two courses in United States History	8
Sociology 0201 — Introduction to Sociology	4
Sociology 0511 — Public Opinion and the Political Process.....	4

Film studies majors should emphasize courses in literature, drama and/or art history in the Humanities to a total of thirty-six credits.

3. A core of at least three of the following four courses in mass communications:

Journalism

0311 — History of American Journalism (Required in Sequence I)

Radio and Television

0270 — Introduction to Radio-Television (Required in Sequence III & IV)

0273 — Mass Media Appreciation and Criticism

Film

0286 — Film History (Required in Sequence V)

4. One of the following sequences:

I. *Print Journalism*

	<i>credits</i>
Journalism	(minimum) 24
0215 — News Reporting	4
0217 — Advanced Reporting	4
0301 — News Editing	4
0320 — Reporting Public Affairs	4
0401 — Journalism Internship	4
0510 — Law of the Press	4

Majors in this sequence must declare a second major or concentration of at least twenty-four credits in another department above the liberal arts group requirements.

II. Public Relations — Advertising

	<i>credits</i>
Journalism	(minimum) 24
0215 — News Reporting	4
0217 — Advanced Reporting	4
0301 — News Editing	4
0401 — Journalism Internship	4
0510 — Law of the Press	4
0560 — Industrial Editing	4
Business Administration	(minimum) 24
Marketing 0530 — Marketing Management	4
Marketing 0532 — Business Communication	4
Marketing 0549 — Principles of Advertising	4
Marketing 0585 — Promotion Strategy	4
Marketing 0642 — Advertising Copy	4
Marketing 0646 — Public Relations of Business	4
Communication, Rhetoric and Public Address	(minimum) 12
0210 — Persuasive Speaking	4
0316 — Contemporary Persuasive Campaigns and Movements	4
0520 — Group Communication and Human Interaction	4

III. Electronic Journalism

Journalism	(minimum) 28
0215 — News Reporting	4
0217 — Advanced Reporting	4
0320 — Reporting Public Affairs	4
0370 — Radio and Television News Reporting	4
0375 — Advanced Radio and Television News Reporting	4
0401 — Journalism Internship	4
0510 — Law of the Press	4
Speech	(minimum) 4
0200 — Effective Speech	4
Radio and Television	(minimum) 20
0271 — Radio and TV Announcing	4
0272 — Basic Television Production Techniques	4
0274 — Writing for Radio-Television-Film	4
0371 — Radio Production	4
0580 — Mass Communications and Society	4

IV. Broadcast Production

Radio and Television	(minimum) 24
0271 — Radio and TV Announcing	4
0272 — Basic Television Production Techniques	4
0274 — Writing for Radio-Television-Film	4
0371 — Radio Production	4
0375 — Advanced Television Production Techniques	4
0580 — Mass Communications and Society	4
Electives from:	(minimum) 16
0370 — Mass Media and the Black Community	4
0372 — Television Performance	4
0570 — Audience Measurement and Survey Techniques in Mass Media	4
0572 — Broadcast Management	4

0576 — Television Directing	4
0578 — Advanced Radio-Television-Film Writing	4
0583 — International Communications	4
0677 — Advanced Projects in Radio-Television-Film	1-4 (Max. 8)

V. Film Studies

Film	(minimum) 16
0387 — Basic Cinematography Techniques	4
0586 — History of Motion Pictures II	4
0587 — Advanced Cinematography Techniques	4
0687 — Motion Picture Production	4
Radio and Television	(minimum) 12
0274 — Writing for Radio-Television-Film	4
0580 — Mass Communications and Society	4
0677 — Advanced Projects in Radio-Television-Film	1-4 (Max. 8)
Art	(minimum) 12
0238 — Photography	4
0239 — Photography	4 (Max. 12)
0537 — Color Photography	4 (Max. 12)

BACHELOR OF FINE ARTS

With Specialization in Theatre

The Bachelor of Fine Arts degree is available to students who wish to specialize in theatre. This degree program is designed to provide a broad understanding and an opportunity for full experience in the theatre arts through a curriculum of pre-professional training. The B.F.A. program is divided into two curricula: the *performance* curriculum, emphasizing acting and/or directing; the *production* curriculum, concentrating upon scenic and costume design, and technical theatre.

Admission — Students may petition for entrance into the B.F.A. program in theatre. It is expected that students seeking admission into the performance curriculum will have completed Speech 0207, 0208, 0209, 0261, 0264, and 0269 before entering their petition. However, all students considering the B.F.A. curriculum are encouraged to consult the B.F.A. adviser early in their freshman year. Admission to the performance or the production curriculum will be based upon an interview with the theatre staff.

Degree Requirements — All students entering the Bachelor of Fine Arts program must complete the Liberal Arts Group Requirements. However, the student may waive either the science or the foreign language requirement. It is recommended that the student complete his Group Requirements as soon as possible. A minimum of 180 credits must be completed for the degree of which 96 to 120 must be elected in Speech Communication and Theatre. Each student shall complete Speech 0200, 0250, and 0260, or their equivalents, preferably during the freshman year. B.F.A. students are assigned a faculty adviser upon admission to the program.

Curricula — Outlines of the recommended sequence of courses, including required courses for both the performance and production curricula, are available in the Theatre Office.

MASTER OF ARTS

With a Major in Speech

Plan A (if recommended by the Chairman of the Committee on Graduate Study) — Thirty-six credits in course work plus a thesis.

Plan B — Forty-five credits in course work plus an essay.

Plan C — Forty-eight to sixty-two credits in course work plus comprehensive and written oral examination in major (total credits determined by individual areas).

Admission — The prerequisite to admission is a minimum of twenty-two credits in the desired area of specialization. The applicant for graduate study in speech must be able to write effectively; must demonstrate, by performance tests or course grades, proficiency in speaking and reading; and must consult the Chairman of the Departmental Graduate Committee.

Candidacy must be established by the time eighteen credits have been earned.

Degree Requirements — All applicants for the master's degree are required to take Speech 0700. The graduate program is to be worked out as early as possible with the student's major adviser. A student who has any anticipation of teaching will be expected to elect Speech 0501; 0506 or 0791; 0566; 0607 and one course in the area of mass communications.

Essays or theses may be written in any one of the principal fields of speech: communication, rhetoric, and public address; oral interpretation; communication disorders and sciences; audiology; theatre; mass communications; speech education; or in any combination of these fields with related fields. A final oral examination is required.

For those graduate students specializing in Public Relations and Organizational Communication, it is recommended that they elect from the following courses: (in communication, rhetoric, and public address) 0510, 0511, 0518, 0520, 0521, 0619, 0620, 0621, 0626, 0710, 0721, 0726, 0727, 0820, 0821, 0826; (in radio, television, and film) 0570, 0574, 0580, 0786, 0787; (in business administration) Marketing 0549 (Principles of Advertising); 0642 (Advertising Copy); 0646 (Public Relations in Business).

For those specializing in mass communications, either Speech 0782 or 0787 must be included in the plan of work, as well as one additional radio-television-film course numbered above 0700. At least two of the following are also required: Speech 0570, 0572, 0580, 0583.

For those specializing in speech pathology, it is essential that the prospective graduate students confer with an adviser in the area of Communication Disorders and Sciences concerning academic, clinical, and professional programs to meet certification requirements as set forth by the area and by the American Speech and Hearing Association.

For those desiring to specialize in audiology, it is recommended that early contact be made with the Department of Audiology, School of Medicine, 261 Mack Boulevard, for specific requirements.

Master of Arts in Teaching College Speech

Plan B — Forty-five credits in course work plus an essay.

The student must meet the admission, candidacy, and degree requirements specified above for the M.A. degree. The election of all course work must be approved by the Chairman of the Departmental Committee on Graduate Study.

MASTER OF FINE ARTS

With Specialization in Theatre

The Master of Fine Arts degree in theatre is a two-year program of intense professional training in the student's area of specialization and is offered in acting, directing, or technical theatre.

A minimum of forty-eight credits in graduate courses is required for the M.F.A. (sixty credits for a Technical M.F.A.), including Speech 0700 and three or four credits in Speech 0799 (Master's Essay Direction). The detailed sequence of required and recommended courses may be obtained at the Department Office.

The essay in *acting* will consist of:

1. A recital demonstrating the student's ability to perform acceptably in a variety of acting styles. A theatre arts faculty committee will evaluate the recital.
2. a. The student must submit a paper on the materials performed in his recital, including a critical analysis and an explanation of the creative process leading to performance; or
b. The student may choose to write a paper on two major roles which he played in the Wayne State University Theatre program. The paper must include a critical analysis and an explanation of the creative process leading to performance.
3. The student is orally examined on all work done on his M.F.A. program.

The essay in *directing* will consist of:

1. After consultation with the theatre arts faculty, the student will be required to direct, independently, a full-length production presenting a problem of suitable complexity. The production will be evaluated by a committee of the theatre arts faculty. The student will furnish evidence of his responsibility for all aspects of production.
2. The student must submit a paper including an historical and critical analysis of the play and its dramatist and a production notebook explaining the problems encountered and a description and evaluation of the solutions attempted.
3. The student will be orally examined on all work done on his program.

Students with an earned bachelor's degree are eligible to enroll in the M.F.A. program if they have successfully completed an audition or personal interview with the theatre arts faculty.

Students with deficiencies of background may be provisionally admitted to the M.F.A. program provided that they enroll in work prescribed to eliminate these deficiencies.

Students must declare their area of specialization upon entry into the M.F.A. program in theatre, although this declaration need not be final until the end of the first year. All students in the M.F.A. program in *acting* are expected to become members of the Hilberly Classic Theatre Company.

DOCTOR OF PHILOSOPHY

With a major in speech and specializations in communications, rhetoric, and public address; communication disorders and sciences; mass communications; oral interpretation; theatre; audiology; or general speech.

The program leading to the Doctor of Philosophy Degree with a major in speech is designed to serve various purposes: (1) improvement in general communicating ability; (2) training in specific types of professional speech communication; (3) careers in communications in public and private organizations; (4) preparation for teaching various phases of speech in universities, colleges, or secondary schools; (5) training for diagnosis and remediation of speech and hearing problems; and (6) professional careers in radio-television-film and theatre.

Admission — Required prerequisites are an undergraduate or graduate major in speech, ability to write effectively, demonstrated proficiency in speaking and reading.

In addition to completing all admission procedures in the Graduate Division, the applicant for graduate study in speech must consult the Chairman of the Departmental Committee on Graduate Study.

If the applicant's capabilities are not already known to the Committee on Graduate Study, decision on his acceptance as a doctoral candidate may be deferred until after a quarter's work has been completed.

For those desiring to specialize in audiology it is recommended that early contact be made with the Department of Audiology, School of Medicine, 261 Mack Boulevard, for specific requirements.

For those desiring to specialize in Communication Disorders and Sciences, early contact should be made with the area head, Speech and Hearing Center, 5900 Second, for specific requirements.

Degree Requirements — (1) Speech 0700 or its equivalent; (2) four tool courses: courses in research methodologies germane to the student's dissertation research and ultimate professional objectives. This requirement may be fulfilled, in part, by demonstrating suitable proficiency in a language useful to the student's dissertation research. Dissertations characteristically employ critical, historical, or quantitative methods. Specific guidelines for each area of specialization are available in the office of the Chairman of the Departmental Graduate Committee. Additional requirements may be made by the student's advisory committee and the Departmental Graduate Committee.

The qualifying examinations will cover areas of speech which are elected in the student's plan-of-work. A generalized degree program will cover at least four areas. A specialized

degree program will cover the field of specialization and the minor or minors approved in the plan. Detailed information is available in the Department Office.

Prior to undertaking his research, the doctoral student must prepare in quadruplicate the Graduate Division doctoral dissertation outline and record of approval form and obtain the doctoral committee's approval of his topic.

FELLOWSHIPS AND ASSISTANTSHIPS

Each year a number of graduate assistantships and fellowships involving half-time teaching or other work are awarded to qualified doctoral students. Write directly to the chairman of the department or head of the area regarding financial assistance.

Organizations and Honors — Wayne State University has undergraduate chapters of The Society of Professional Journalists, Sigma Delta Chi and Women in Communications, professional journalism societies. Annual honors to journalism majors include the outstanding graduate award.

Journalism Undergraduate Scholarships and Loan Funds — Journalism majors of junior standing are eligible for scholarships, including the David J. Wilkie scholarship, maintained by Detroit's automobile industry; Women in Communications scholarship; the George M. and Mable Slocum Foundation scholarship; and the W. Sprague Holden Memorial scholarship. Candidates should apply at the journalism office. Three loan funds give journalism students first preference: those established in memory of Milton Tipton (1950), Detroit News reporter; Arthur Dorazio (1965), former executive news editor of the Detroit Free Press and associate professor of journalism at Wayne State University; and Thomas Devine (1968), long-time Detroit sports newsman. Interest-free loans to students from these and other funds are administered by the University Office of Student Financial Aids, 222 Administrative Services Building.

COURSES OF INSTRUCTION¹ (SPH)

General and Speech Pedagogy

6200. Effective Speech. Cr. 4.

Beginning course to develop poise and confidence in speaking, emphasizing speaker's personality, voice, diction, bodily action; fundamentals of speech preparation.

6204. Voice and Articulation. Cr. 4.

Laboratory for individual improvement in voice and articulation; analysis of voice and articulation of each student followed by intensive exercises.

0390. Directed Study. Cr. 1-4 (Max. 4).

Prereq: speech major with 20 credits completed; consent of chairman.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

0501. Psychology of Human Communication. Cr. 4.

Prereq: SPH 0200 or equiv. Basic psychological principles as applied to human and interpersonal communication: process nature, emotion, motivation, language, and personality.

0505. Advanced Voice and Articulation. Cr. 3.

Prereq: SPH 0204. Intensive individual vocal drill on the development of vocal qualities, strengthening the breathing muscles, development of pitch range and inflection, projection, tempo, rhythm and articulation as used in mass communication, theatre, public address, and oral interpretation. Individual attention.

0506. Issues and Methods in Secondary Speech Education (TED 4541). Cr. 4.

Prereq: 20 credits in speech or consent of instructor. Philosophy, pedagogical issues, and methods for teaching speech in secondary schools.

0508. Phonetics (TED 5432). Cr. 4.

Multisensory study of sounds of the English language, emphasizing acoustic, physiologic, kinesiology approaches.

0509. Anatomy and Physiology of the Speech Mechanism (TED 5433). Cr. 4.

Prereq: consent of instructor. General science of normal speech; anatomy and physiology of respiration, phonation, resonance, articulation.

0522. Communication in the Area of Human Sexuality. Cr. 4.

Prereq: consent of instructor. Theories of communication and discussion applied to human sexuality. Current literature reviewed in preparation for assigned speeches, discussions, and role-playing.

0606. Perspectives on Speech Communication Education (TED 5541). Cr. 4.

Prereq: SPH 0506 or graduate standing. Historical approaches and basic philosophies of speech education.

0700. Introduction to Graduate Study in Speech. Cr. 4.

Required during first fifteen credits of all students entering graduate studies in speech.

0790. Directed Study. Cr. 2-4 (Max. 6).

Prereq: consent of chairman and graduate officer.

0791. Approaches to Teaching Speech Communication on the College Level I. Cr. 4.

0792. Student Teaching of Speech Communication on the College Level. Cr. 4.

Prereq. or coreq: SPH 0791 and consent of adviser. Offered for S and U grades only.

0794. Approaches to Teaching Speech Communication on the College Level II. Cr. 4.

Prereq: SPH 0791. Continuation of Speech 0791.

0799. Master's Essay Direction. Cr. 3-4.

Prereq: consent of adviser.

0809. Research in Speech Science (TED 8436). Cr. 4.

Prereq: consent of instructor and adviser.

0899. Master's Thesis Research and Direction. Cr. 2-12 (12 required).

Prereq: consent of adviser.

0999. Doctoral Dissertation Research and Direction. Credits to be arranged.

Prereq: consent of doctoral adviser.

Communication, Rhetoric, and Public Address

0210. Persuasive Speaking. Cr. 4.

Prereq: SPH 0200. Audience analysis and motivation; choice, arrangement, adaptation of materials. Talks to win attention, secure action, overcome prejudice and hostility. Theory and practice of social psychology as applied to persuasion.

0211. Argumentation and Debate. Cr. 4.

Prereq: SPH 0200. Logical and legal foundations of the argumentation process; practical experience in analysis, reasoning, case-building, evaluation of evidence, refutation and cross-examination.

0220. Interpersonal Communication. Cr. 4.

Prereq: SPH 0200. Introduction to theory and research on interpersonal communication; analysis of everyday communication situations; practice in interpersonal communication.

0224. Forensics Practicum. Cr. 1-2 (Max. 6).

Special permission needed for two credits. Prereq: SPH 0211 or consent of instructor. Training and participation in debate; discussion, oratory, extempore speaking program.

0311. Legal Argumentation. Cr. 4.

Prereq: SPH 0200. No credit after Speech 0211. Basic legal and logical concepts fundamental to systems of legal analysis.

0312. Parliamentary Law. Cr. 2.

Theory and practice in methods of organization, order of business, conduct of business, motions, formation of constitution and by-laws.

0316. Contemporary Persuasive Campaigns and Movements. Cr. 4 (Max. 8).

Rhetorical analysis of techniques utilized in specific campaigns and movements. Fall — political campaigns and movements; Winter — social movements; Spring — commercial and advertising campaigns.

0321. Communication: Concepts and Contexts. Cr. 4.

Survey of theory and research in communication with attention to a variety of communication contexts.

0324. Introduction to Organizational Communication. Cr. 4.

Introduction to principles and theories which can be used to guide the way people communicate in organizations.

0326. The Popular Culture, Communication, and Futurism. Cr. 4.

The study of popular culture as a reflection of current social issues.

0504. Communication Dynamics in the Black Community (TED 5437). Cr. 4.

Prereq: SPH 0518 or consent of instructor. Sociolinguistic and rhetorical analysis of speech and language behavior among Afro-Americans; linguistic history and development of black English. Related issues concerning the education of black children.

0510. Advanced Public Speaking. Cr. 4.

Prereq: SPH 0210 or 0211. Performance and criticism of original speeches to develop understanding of the principles of public speaking as they apply to a variety of speech situations.

0511. Decision Making and Controversy. Cr. 4.

Prereq: SPH 0211 or consent of instructor. Decision making from the perspective of public policy and contemporary argumentation theory.

0512. Problems in Parliamentary Law. Cr. 2.

Prereq: SPH 0312 or consent of instructor. Advanced course on the solution of problems; the logic, strategy, and common errors in parliamentary law; practical experience in use. Meets certification requirements of American Institute of Parliamentarians.

0517. Human Communication and the Aged. Cr. 4.

Training in communication theories and skills relevant to the aged, current literature reviewed in preparation for devising strategies for improving interpersonal and institutional communication.

0518. Introduction to Language. Cr. 4.

Survey of major approaches to the study of language with special attention to their historical and conceptual foundations.

0520. Group Communication and Human Interaction. Cr. 4.

Theory, research, and practice in small group and interpersonal communication. Decision-making strategies; analysis of personal communication strengths.

0521. Theories of Persuasion. Cr. 4.

Prereq: SPH 0210. Survey of theory and research on communication as social influence.

0607. Directing Forensics. Cr. 4.

Prereq: SPH 0211 or consent of instructor. Philosophy and methods of directing high school and college forensics programs; techniques of coaching for debate, oratory, extempore speaking and other reading and speaking contests.

0611. Argument and Controversy. Cr. 4.

Prereq: SPH 0210 or 0211 or graduate standing. Advanced studies in argumentation, including the structure of reasoning, the organization of arguments, strategies of argument, and the nature of proof.

0617. Theories of Interpersonal Communication. Cr. 4.

Survey of theory and research on interpersonal interaction, with special emphasis on social perception, self-presentation, and the formation of relationships in interaction.

0618. Communication Development. Cr. 4.

Introduction to theory and research on the acquisition of communication strategies and interpersonal skills by children and adolescents, with special attention to the development of rhetorical and referential communication skills.

0619. Speech Communication Internship. Cr. 1-4 (Max. 6).

Open only to majors. Prereq: written consent of instructor. On-the-job observations and work experience in business, service, social, governmental, and industrial organizations. Special emphasis on public relations and organizational communication.

0620. Theories of Small Group Processes. Cr. 4.

Prereq: SPH 0200, 0520, or consent of instructor. Theory and research on communication in the small, task-oriented group.

0621. Organizational Communication. Cr. 4.

Prereq: SPH 0324 or graduate standing. Structure and function of communication in organizations; concepts and principles needed for effective management of organizational communication processes.

0624. Speech Communication Laboratory Practicum. (0,2-8). Cr. 1-2 (Max. 4).

Prereq: consent of speech communication laboratory director. Training and experience in laboratory projects and equipment utilization.

0626. Behavioral Research Methods in Speech Communication I. Cr. 4.

Methods of data collection and analysis in communication research, approaches to measurement, research design, and other quantitative methods of communication research.

0710. Advanced Studies in Persuasion. Cr. 4.

Prereq: SPH 0521. Analysis and discussion of cognitive consistency theories, affiliation, achievement, and emotional balance theories; a search for an eclectic theory of persuasion.

0712. Studies in Contemporary Public Address. Cr. 4 (Max 8).

Prereq: SPH 0210. Critical analysis of rhetoric and strategy of group efforts to bring about change over a period of time. Even numbered years: political campaigns; odd numbered years: social movements.

0718. Speech, Language, and Social Relationships. Cr. 4.

Relation of speech and language patterns to social interaction. Ethnolinguistics, forms of address, social class perceptions, and other topics.

0719. Classical Rhetorical Theory. Cr. 4.

Prereq: SPH 0210 or 0211 or classical civilization major. Critical analysis of the Sophists, Plato, Aristotle, Cicero, and others on rhetoric.

0721. Communication Theory I. Cr. 4.

Prereq: SPH 0521. Systematic analysis of major twentieth century theories of communication with a discussion of their historical and philosophical foundations.

0722. Communication Theory II. Cr. 4.

Prereq: SPH 0721 or consent of instructor. Discussion and critical review of recent developments in communication theory.

0725. Rhetorical Criticism. Cr. 4.

Prereq: SPH 0210 or consent of instructor. Principles of criticism as applied to public address; analysis of standards and methods of evaluation and readings in modern criticism of public address. Research project.

0726. Behavioral Research Methods in Speech Communication II. Cr. 4.

Prereq: written consent of instructor. Continuation of Speech 0626.

0727. Special Problems in Rhetorical Criticism. Cr. 4.

Studies and utilization of the various methodologies for the criticism of discourse.

0728. Modern Rhetorical Theory. Cr. 4.

Prereq: graduate standing. Development of British and American theories of rhetoric in the eighteenth and nineteenth centuries; critical analysis of important philosophers (Locke, Bacon, and Hume) and major rhetorical theorists (Campbell, Blair, Whatley, and Adams).

0729. Contemporary Rhetorical Theory. Cr. 4.

Prereq: consent of instructor. Exploratory analysis of a broad spectrum of recent works relevant to the art of discourse. (Formerly Speech 0813.)

0812. Advanced Studies in Public Address. Cr. 4 (Max. 12).

Topics to be announced in *Schedule of Classes*.

0818. Advanced Studies in Rhetoric. Cr. 4 (Max. 8).

Prereq: SPH 0719 or consent of instructor. Topics to be announced in *Schedule of Classes*.

0821. Advanced Studies in Communication. Cr. 4 (Max. 12).

Prereq: SPH 0521. Selected topics in communication theory and research to be announced in *Schedule of Classes*.

0822. Advanced Studies in Language and Communication. Cr. 4 (Max. 12).

Prereq: consent of instructor. Topics to be announced in *Schedule of Classes*.

0826. Behavioral Research Methods in Speech Communication III. Cr. 4.

Prereq: SPH 0626. Continuation of Speech 0726. Application of quantitative methods to a research project.

0827. Independent Research in Communication, Rhetoric and Public Address. Cr. 2-6 (Max. 6).

Open only to M.A. candidates or doctoral students with written prospectus approved by adviser. Research projects developed by groups or individual students.

0829. Advanced Research Methods in Speech Communication. Cr. 4 (Max. 12).

Prereq: consent of instructor. Topics to be announced in *Schedule of Classes*.

0897. Seminar in Communication, Rhetoric and Public Address. Cr. 3-4 (Max. 12).

Prereq: consent of instructor.

Communication Disorders and Sciences

(For Speech 0508, 0509, 0809, see descriptions under GENERAL AND SPEECH PEDAGOGY.)

Student Remedial Speech. No credit. Consult director of the Speech and Hearing Center for information concerning speech correction for University students.

0530. Introduction to Speech Pathology (TED 5430). Cr. 4-5.

Development of speech correction in education; classification, basic principles, methods of diagnosing and treating speech deficits; clinical observations required for majors only.

0531. Clinical Methods in Speech Pathology (TED 5431). Cr. 5.

Prereq: SPH 0530 or consent of instructor. Procedures and materials for clinical diagnosis of articulatory, language, rhythm, and voice deficits of organic and non-organic causation.

0532. Normal Language Acquisition and Usage (TED 5436). Cr. 4.

Language development in children and the associated areas of emotional and motor development; language stimulation techniques and programs.

0533. Neurologically Based Speech and Language Disorders (TED 5438). Cr. 4.

Prereq: SPH 0509 and 0530. Etiology, symptomology and clinical treatment of neurologically based speech and language disorders in children and adults.

0536. Clinical Practice in Speech Pathology (TED 5434). Cr. 2 (Max. 8).

Prereq: SPH 0531, 0630 and 0532 and written consent of instructor. Supervised experience in application of methods of diagnosis and treatment of clinical cases.

0539. Language Pathology: Etiology and Diagnosis (TED 5439). Cr. 4.

Prereq: SPH 0530 and 0532. Descriptions, etiology, methods of diagnosis of language disorders in children.

0608. Advanced Phonetics (TED 6433). Cr. 4.

Prereq: SPH 0508. Correlation of physiology to the production of speech and the acoustic characteristics of the sounds of English.

0609. Electroacoustics of Speech (TED 6434). Cr. 4.

Prereq: consent of instructor. Lecture-laboratory consideration of electroacoustics as applied to speech and audition.

0630. Speech Pathology (TED 6430). Cr. 4 (Max. 12).

Prereq: SPH 0530 or consent of instructor. I—articulation; II—stuttering; III—voice and cleft palate. Topics to be announced in *Schedule of Classes*.

0632. Organization and Methods in Speech Pathology (TED 6432). Cr. 4.

Prereq: consent of instructor. Class organization, management, material, teaching aids, techniques.

0634. Speech Rehabilitation of the Laryngectomee (TED 6439). Cr. 1-4.

Prereq: consent of instructor. Basic principles and practices for developing and improving the speech of the laryngectomee.

0636. Advanced Clinical Practice in Speech Pathology (TED 6436). (1,2). Cr. 2-4 (Max. 8).

Prereq: SPH 0531; 0630 and written consent of instructor. Advanced clinical practice in the diagnosis and treatment of one or more of five speech pathologies. I—stuttering; II—aphasia; III—cleft palate; IV—cerebral palsy; V—voice. Topics to be announced in *Schedule of Classes*.

0638. (TED 6455) Teaching Communication Skills to the Language Disordered. Cr. 3.

Prereq: SPH 0539 or written consent of instructor. Problems of primary language disorders in children; diagnosis; systematic approach to the development of speech and language, educational methods, and evaluation.

0730. Behavior Modification in Speech Pathology (TED 7436). Cr. 4.

Presentation of classical, instrumental, implosive and modeling treatment paradigms applied to the various speech and language disorders in individual and group therapy.

0734. Dynamic Analogies (TED 7434). Cr. 4.

Prereq: written consent of instructor. Analogies between electrical, mechanical rectilinear, mechanical rotational and acoustical systems.

0735. Advanced Anatomy and Physiology of the Speech Mechanism (TED 7435). (2,4). Cr. 4.

Prereq: SPH 0509 and written consent of instructor. Materials fee: \$10. Consideration of current literature and dissection.

0736. Internship in Speech Pathology (TED 7430).
Cr. 2-4 (Max. 12).

Prereq: written consent of instructor. Advanced professional experience in clinical speech pathology.

0737. Special Research Projects in Communication Disorders and Sciences (TED 7437). Cr. 4.

Prereq: consent of instructor. Research design and implementations; design and conduct of research projects emphasizing student's preparation for conducting master's and doctoral research.

0738. Diagnosis of Speech and Language Problems (TED 7431).
Cr. 4 (Max. 12).

Prereq: written consent of instructor. Clinical practice in diagnosis; handling referrals to medical specialists; planning, training, treatment procedures.

0739. Advanced Clinical Methods in Speech Pathology (TED 7439). Cr. 4.

Prereq: SPH 0533, 0539, 0630. Presentation of diagnostic and treatment methodologies in: I—stuttering; II—aphasia; III—cleft palate; IV—neuromuscular disorders; V—voice; VI—articulation; VII—language disorders; VIII—selected topics.

0838. Seminar in Speech Science (TED 8438). Cr. 4 (Max. 16).

Prereq: written consent of instructor. I vocal mechanisms; II embryology; III neuromuscular bases; IV feedback mechanisms. Four credits in each topic. Topics to be announced in *Schedule of Classes*.

0839. Seminar in Speech and Language Pathology (TED 8437).
Cr. 4.

Prereq: SPH 0739 or consent of instructor. I—stuttering; II—aphasia; III—cleft palate; IV—neuromuscular disorders; V—voice disorders; VI—articulation; VII—language pathology; VIII—special topics. Topics to be announced in *Schedule of Classes*.

Audiology

0540. Introduction to Audiology (AUD 0540) (TED 5440). Cr. 4.
Prereq: consent of instructor. Physics of sound, anatomy of the hearing mechanism, audiometry, hearing aids, habilitation and rehabilitation of the hearing handicapped.

0541. Directed Readings in Audiology (AUD 0541).
Cr. 2 (Max. 4).

Prereq: SPH 0540. Reading assignments, lectures, discussions, oral and written reports. Two hours required in first quarter for M.A. students.

0542. Speech Reading and Auditory Training (AUD 0542) (TED 5451). (4,3). Cr. 5.

Prereq: SPH 0540 or consent of instructor. Principles and methods of teaching speech reading and utilizing auditory training for the hard-of-hearing and deaf. Observations and practice required.

0544. Practicum in Audiology (AUD 0544) (TED 5441).
Cr. 2-4 (Max. 6).

Prereq: SPH 0540 or 0542 and written consent of instructor. Not open for credit to graduate students in audiology. Supervised training and practice for clinical certification: (I) audiometry; (II) speech reading and auditory training.

0548. Acoustics, Instruments (AUD 0548). (3,3). Cr. 4.

Prereq: graduate standing in audiology or consent of instructor.

Design, calibration, and use of electro- and bio-acoustic instruments in clinical audiology.

0549. Acoustics, Sound and Noise (AUD 0549). (3,3). Cr. 4.

Prereq: SPH 0548 or consent of instructor. Generation, measurement, and control of sound and noise as related to problems in clinical and industrial audiology.

0640. Anatomy of the Ear (AUD 0640) (TED 6442). Cr. 4.

Prereq: graduate standing or consent of instructor. Functional anatomy, physiology, neurology of the hearing mechanisms; study of research on basic auditory correlates.

0641. Clinical Audiometry I (AUD 0641). Cr. 3-4.

Prereq: graduate standing in audiology or consent of instructor. Fundamental principles and clinical applications of pure-tone and speech audiometry.

0642. Clinical Audiometry II (AUD 0642). Cr. 3-4.

Prereq: SPH 0641. Application of pure-tone and speech audiometry to complex auditory problems.

0643. Clinical Audiometry III (AUD 0643). (3,0-3). Cr. 3-4.

Prereq: SPH 0641. Physical characteristics and clinical aspects of auditory amplifiers for the hearing handicapped.

0644. Aural Rehabilitation (AUD 0644). (4,2). Cr. 4.

Prereq: 8 credits in audiology or consent of instructor. Principles and procedures in the utilization of residual hearing, lip reading, auditory training, and hearing aids in the rehabilitation of hard-of-hearing and deafened adults.

0645. Clinical Procedures in Audiology (AUD 0645).
Cr. 2 (Max. 10).

Prereq: written consent of department. In-depth study of special current topics in audiology. Topics to be announced in *Schedule of Classes*.

0646. Experimental Audiology I (AUD 0646). (3,3). Cr. 4.

Prereq: graduate standing in speech or written consent of instructor. Lectures and laboratory projects designed to develop fundamental principles of the design of experiments in audiology.

0647. Experimental Audiology II (AUD 0647). (3,3). Cr. 4.

Prereq: SPH 0646. Lectures and laboratory projects to provide experience in the actual conduct and reporting of fundamental experiments in audiology.

0740. Research Projects in Audiology (AUD 0740).
Cr. 4 (Max. 12).

Prereq: written consent of instructor. Methods and procedures for experimental study of auditory function in the normal and hard-of-hearing; independent research projects.

0741. Psychoacoustics (AUD 0741). Cr. 4.

Prereq: written consent of instructor. Psychophysical methods, physical acoustics, and psychological correlates to acoustic events.

0742. Community and Industrial Problems in Audiology (AUD 0742). Cr. 4.

Prereq: 12 graduate credits in audiology or consent of instructor. Hearing conservation programs in industry and in the community; discovery and prevention of hearing loss; medico-legal problems.

0743. Audiological Management of Children (AUD 0743).
(3,2). Cr. 4.

Prereq: SPH 0641 and consent of instructor. Tests, test procedures,

educational placement and management of pre-school and school age children with hearing deficiencies.

0745. Statistical and Experimental Procedures in Audiology I (AUD 0745). Cr. 4.

Prereq: consent of instructor. Introduction to descriptive and inferential statistics and experimental designs as applied to auditory, psychophysical, and behavioral data.

0746. Statistical and Experimental Procedures in Audiology II (AUD 0746). Cr. 4.

Prereq: SPH 0745. Application of the various analyses of variance procedures to auditory, psychophysical, and behavioral data.

0747. Statistical and Experimental Procedures in Audiology III (AUD 0747). Cr. 4.

Prereq: SPH 0746. Use of non-parametric statistics and special correlation methods with auditory and psycho-physical data.

0748. Internship in Audiology (AUD 0748). Cr. 2-4 (Max. 8).

Prereq: consent of instructor. Professional experience in clinical audiology, case work-ups, assigned reading.

0749. Educational Management of Hearing Impaired Children (AUD 0749). Cr. 4.

Prereq: SPH 0743 or written consent of instructor. Preschool guidance and counseling; modern educational models and placement options; the role of the audiologist in educational management.

0840. Anatomy and Physiology of the Auditory and Vestibular Pathways (AUD 0840). (3,3). Cr. 4.

Prereq: SPH 0640 and written consent of department. Functional neuro-anatomy and physiology of the auditory and vestibular pathways.

0841. Audiology I (AUD 0841). Cr. 3.

Prereq: SPH 0641, 0642, and 0643 or consent of instructor. Open only to students with master's degree. Special procedures and applications of pure-tone and speech audiometry with emphasis on theoretical factors and research.

0842. Audiology II (AUD 0842). Cr. 3.

Prereq: SPH 0841. Open only to students with master's degree. Historical development and clinical and research applications of automatic, operant, and bioelectric audiometry.

0843. Audiology III (AUD 0843). Cr. 3.

Prereq: SPH 0842. Open only to students with master's degree. Clinical research related to auditory amplifiers with special emphasis on modern trends in instruments for both hard-of-hearing and deaf.

0844. Research Seminar in Deafness (AUD 0844) (TED 8456). Cr. 3-4 (Max. 8).

Prereq: consent of instructor. Methods and procedures in experimental study of deafness and the deaf; literature; apparatus, supervised research.

0848. Seminar in Audiology (AUD 0848). Cr. 4 (Max. 16).

Prereq: consent of instructor.

0849. Advanced Seminar in Deafness (TED 8457). Cr. 3-4 (Max. 8).

Prereq: consent of instructor.

Oral Interpretation

0250. Beginning Oral Interpretation. Cr. 4.

Prereq: SPH 0200. Interpretative approach to literature; fusion of voice, body, and meaning in the reading of poetry, prose, and drama; interaction of reader, listener, and literature.

0350. Advanced Oral Interpretation. Cr. 4.

Prereq: SPH 0250 or equiv. Further development and application of oral performance techniques, including cutting and preparation of poetry, prose, and drama.

0450. Oral Interpretation of Black Literature. Cr. 4.

Prereq: SPH 0250 or equiv. Orality in terms of tone, rhythm, tempo, inflection, and articulation.

0550. Interpretation of Poetry. Cr. 4.

Prereq: SPH 0250 or equiv. Study and performance of forms of poetry, contemporary and traditional, including haiku, ballad, sonnet, dramatic poetry, and ode.

0553. Interpretation of Prose Fiction. Cr. 4.

Prereq: SPH 0250 or equiv. Study and performance of scene, role, and gesture in the short story and novel.

0554. Interpretation of Dramatic Literature. Cr. 4 (Max. 8).

Prereq: SPH 0250 or equiv. I—Classic and Medieval drama; II—Shakespeare; III—Modern drama. Topics to be announced in *Schedule of Classes*.

0555. Oral Reading Workshop. Cr. 1-2 (Max. 6).

Prereq: SPH 0250 or consent of instructor. Workshop in conjunction with Oral Interpretation activities. Selection, adaptation, and presentation of all types of literature and manuscript speeches for festivals, contests, and public programs.

0557. Interpretation of Oriental and Mideastern Religious Literature. Cr. 4.

Prereq: SPH 0250 or equiv. Study and performance of: Oriental and Mideastern religious literature relating to Buddhism, Confucianism, Hinduism, and the Bible.

0558. Group Interpretation. Cr. 4.

SPH 0250 or equiv. Theatre of the mind. Theory and practice of Readers Theatre, Chamber Theatre, Choral Speaking, and Multiple Reading. Directing and participation for beginning and advanced students.

0750. Theories of Oral Interpretation. Cr. 4.

Prereq: a 0500 level course or equiv. Methods and techniques of oral interpretation relating to literary, psychological, aesthetic, dramatic, and phenomenological theories.

0752. History of Oral Interpretation. Cr. 4.

Prereq: a 0500 level course or equiv. Study of the oral tradition from pre-Greek civilizations through the nineteenth century.

0755. Oral Interpretation Repertoire. Cr. 4.

Prereq: SPH 0750 or consent of instructor and one 0500 level course in oral interpretation. Problems in choice of materials, audience situations, adaptation. Aesthetic, psychological, educational, sociological aspects of program planning. Collection, adaptation, rehearsal, and presentation of literature.

0898. Seminar in Oral Interpretation. Cr. 1-3 (Max. 12).

I—Interpretative reading; II—voice and articulation. Topics to be announced in *Schedule of Classes*.

Theatre

0207. Stage Movement Laboratory I. Cr. 3.

Required of B.F.A. acting majors; recommended for all first year acting students. Principles, practices, and exercises in body technique and stage movement; the art of improvisation as it applies to acting theory.

0208. Stage Movement Laboratory II. Cr. 3.

Prereq: SPH 0207 or consent of instructor. Required of B.F.A. acting majors; recommended for all first year acting students. Continuation of Speech 0207. Emphasis on character movement, bodily control.

0209. Stage Movement Laboratory III. Cr. 3.

Prereq: SPH 0208 or consent of instructor. Required of B.F.A. acting majors; recommended for all first year acting students. Continuation of Speech 0208. Complex patterns of movement and creative improvisation of scenes.

0260. Introduction to Theatre. Cr. 4.

Historical, critical and cultural aspects of theatre and drama discussed relative to play attendance. Laboratory projects coordinated with University Theatre productions.

0261. Introduction to Acting for Theatre, Television and Film. Cr. 4.

Fundamentals of the actor's craft; emphasis on movement and pantomime to develop the actor's basic technique.

0262. Black Theatre: Fundamentals of Acting. (3,2). Cr. 4.

Fundamentals of the actor's craft; movement and pantomime to develop basic technique; work relating traditional technique to the black theatre.

0263. Stagecraft. Cr. 4.

Speech 0260 recommended. Principles of scenic construction and painting. Types and utilization of stage scenery. Laboratory projects coordinated with University Theatre productions.

0264. Principles of Characterization. Cr. 4.

Prereq: SPH 0261 or consent of instructor. Basic principles of character building and practice through exercises and scenes. Analysis of play for character clues; utilization of body and voice.

0265. Black Theatre: Principles of Characterization. (3,2). Cr. 4.

Prereq: SPH 0261 or 0262 or consent of instructor. Basic principles of character building and practice through exercises and scenes. Analysis of play for character clues; utilization of body and voice in creating character; special emphasis on voice and diction.

0266. Theatre Criticism and Appreciation. Cr. 4.

Credit for non-theatre majors only. May be taken for no credit by theatre majors. How plays are produced. Understanding and appreciation of acting and theatrical art. Types of plays, styles of production, theatrical criticism. Attendance at certain theatre performances required.

0268. Theatre Laboratory. Cr. 1-8 (Max. 12, B.F.A. technical students; Max. 4, B.A. students).

Supervised laboratory practice in all phases of technical theatre.

0269. Problems in Acting Techniques. Cr. 4.

Prereq: SPH 0264 or consent of instructor; coreq: B.F.A. acting and direction students, SPH 0209. Practice of basic techniques in scenes from plays or skits. Ensemble performance and actor's

responsibilities to other actors, to the play, to the director and production staff, and to the audience.

0307. Advanced Stage Combat. (1,2). Cr. 1.

Prereq: PE 0157 or any stage combat course; adequate physical condition. Advanced instruction and experience in a variety of combat techniques and weapons designed for theatrical use.

0360. University Theatre Practicum. Cr. 1-3 (Max. 16).

Prereq: consent of theatre staff. Public performance of faculty directed dramatic productions of the University's Bonstelle Theatre, Studio Theatre, and Children's Theatre. Credit determined by complexity of dramatic role performed.

0361. Modern Acting Methods. Cr. 4.

Prereq: SPH 0269 or consent of instructor. Required of all B.F.A. acting majors. Continuation of Speech 0269. Projects in more advanced scene techniques; stimulation of the actor's imagination and emotional responses.

0362. Advanced Principles of Characterization. Cr. 4.

Prereq: SPH 0361 or consent of instructor. Required of B.F.A. acting majors. Improvement in the actor's skill in developing imaginative characterization. Scene projects in dialects.

0363. Problems in Modern Acting Styles. Cr. 4.

Prereq: SPH 0362 or consent of instructor. Required of B.F.A. acting majors. Continuation of Speech 0362. Advanced scene projects; solving problems in acting style present in plays by such authors as Ibsen, Chekhov, Shaw.

0364. Stage Movement and Voice Laboratory IV. Cr. 3.

Prereq: SPH 0209 or 0267 or PE 0271; or consent of instructor. Required of B.F.A. acting majors. The process of solving inter-related vocal and physical problems of the actor; relationship of breath control and phonation to stage movement.

0365. Stage Movement and Voice Laboratory V. Cr. 3.

Prereq: SPH 0364 or consent of instructor. Required of B.F.A. acting majors. Continuation of Speech 0364. Vocal and physical techniques as related to the actor's imagination; advanced projects in improvisation.

0366. Stage Movement and Voice Laboratory VI. Cr. 3.

Prereq: SPH 0365 or consent of instructor. Required of B.F.A. acting majors. Continuation of Speech 0365. Vocal and physical techniques as related to the demands of the contemporary drama.

0367. Structure and Analysis of the Drama. Cr. 3.

How to read a play and analyze its structure. Selected nineteenth and twentieth century plays.

0368. Black Theatre: An Introduction. Cr. 4.

Coordinated laboratory projects with University Theatre productions. Origins, development, and current trends, with production techniques and problems related to the special area of the drama.

0381. Black Theatre: Movement for Actors. (0,8). Cr. 2.

Laboratory to develop physical coordination and movement techniques for the actor; special emphasis on the requirements of black theatre.

0382. Black Theatre: Makeup for the Black Actor. Cr. 2.

Lecture-demonstration and practical application by the students of various techniques of stage makeup relating specifically to the problems of the black actor and actress.

0388. Technical Theatre Problems I. (0,6). Cr. 3 (Max. 15).

Prereq: sophomore standing. Open only to B.F.A. technical theatre majors or others with consent of instructor. Individually assigned and directed problems in technical theatre production and design.

0389. Technical Theatre Problems II. (0,6). Cr. 3 (Max. 12).

Prereq: 15 credits in SPH 0388. Open only to B.F.A. technical theatre majors or others with consent of instructor. Continuation of Speech 0388. Design and additional responsibility in production at the University Theatres.

0461. Laboratory in Acting Styles I. Cr. 4.

Prereq: SPH 0363 or consent of instructor. Theory and practice of acting style in generic and historical contexts; emphasis on the drama of the Classical Greek and Roman periods.

0463. Principles of Make-up. Cr. 3.

Fundamentals of theatrical make-up. Laboratory projects coordinated with University Theatre productions.

0464. Stage Lighting Design. Cr. 4.

Theory and practice in stage lighting units, control equipment, color aesthetics; their application to play production. Basic lighting design; laboratory projects coordinated with University Theatre productions.

0465. Laboratory in Acting Styles II. Cr. 4.

Prereq: SPH 0363 or 0461, or consent of instructor. Theory and practice of acting style in generic and historical contexts; Elizabethan and French Neo-Classical drama.

0466. Laboratory in Acting Styles III. Cr. 4.

Prereq: SPH 0363 or 0465, or consent of instructor. Theory and practice of acting style in generic and historical context, emphasis on comedy and farce; the drama of the Restoration, eighteenth and nineteenth centuries.

0467. Stage Movement and Voice Laboratory VII. Cr. 3.

Prereq: SPH 0209 or 0366, or consent of instructor. Vocal, physical and perceptual problems related to acting style in generic and historical contexts; acting style of the Classical Greek and Roman period. Laboratory projects correlated with work in Speech 0461.

0468. Stage Movement and Voice Laboratory VIII. Cr. 3.

Prereq: SPH 0209 or 0366 or 0467, or consent of instructor. Vocal, physical and perceptual problems related to acting style in generic and historical contexts; acting style of the Elizabethan and French Neo-Classical periods. Laboratory projects correlated with the work in Speech 0465.

0469. Stage Movement and Voice Laboratory IX. Cr. 3.

Prereq: SPH 0209 or 0366 or 0468, or consent of instructor. Vocal physical and perceptual problems related to acting style in generic and historical contexts; acting style of the Restoration, and the eighteenth and nineteenth centuries. Laboratory projects correlated with the work in Speech 0466.

0485. Black Theatre: Advanced Principles of Characterization. (3,2). Cr. 4.

Prereq: SPH 0264 or 0265 or consent of instructor. Continuation of Speech 0265. Improvement of the actor's skill in developing imaginative characterizations.

0502. Theatre Costuming. Cr. 4.

Prereq: SPH 0260 recommended. Introduction to costume design and construction. Laboratory projects coordinated with University Theatre productions.

0513. Techniques of Musical Comedy. (0,6). Cr. 3.

Analysis of musical comedy styles and techniques; exploration of key directorial and choreographic issues; performance projects emphasizing movement and composition. Offered in the summer quarter only.

0559. Introduction to Design for the Theatre. Cr. 3.

Prereq: SPH 0263 recommended. Methods and materials laboratory course; practical exercises prerequisite to stage, costume, or lighting design. Techniques of rendering, drafting, perspective, color, scenery construction.

0560. Repertory Theatre. Cr. 1-4 (Max. 9).

Prereq: consent of University Theatre director. Supervised experience in the Classic Theatre.

0561. Form and Styles of Theatre Jazz Dance (DNC 0571). (0,2). Cr. 1.

Prereq: consent of instructor. Techniques and styles of jazz dance as a foundation in the dance idiom.

0562. Play Direction I. Cr. 4.

Prereq: SPH 0464 or consent of instructor. Principles and theories of stage movement, blocking, casting, rehearsing. Laboratory work coordinated with University Theatre productions. Students required to direct scenes for class showing.

0563. (MUA 0563) Opera Workshop. Cr. 2 (Max. 12).

Undergraduate credit only. Prereq: consent of instructor. Re-election by music majors only with consent of adviser. Performing aspects of light and grand operas as they pertain to singers. Scenes, acts, or entire operas performed each quarter.

0564. Play Direction II. Cr. 4.

Prereq: SPH 0562 or consent of instructor. Continuation of Speech 0562. Producing the one-act play. Students required to direct plays on University student stage.

0565. Play Direction III. Cr. 4.

Prereq: SPH 0564 or consent of instructor. Continuation of Speech 0564. Historical development of the director. Students are required to direct a full-length play on the University student stage.

0566. Play Production for School and Community. Cr. 4.

Not for theatre majors. Directing plays for school or community theatres. Organization of dramatic groups, tryouts, casting, problems of directing, motivation of action and speech, inventing stage business, production coordination, and technical survey.

0567. Stage Design (ART 0538). Cr. 4 (Max. 8).

Prereq: SPH 0559 or consent of instructor. The scenic designer's multiple analysis of a play. Practice in evolving a technique of scenic design by study of selected plays with execution of sketches and working drawings.

0568. Advanced Stage Design. Cr. 4 (Max. 8).

Prereq: SPH 0567 or consent of instructor after examination of some of student's scenic designs. Laboratory theory course in stylistic characteristics of modern stage design. Advanced problems in scenic design.

0569. Theatre History I. Cr. 4.

Production development from Greek and Hellenistic periods through medieval drama; cultural environment of theatrical period.

0577. Black Theatre: Literature and Criticism. Cr. 3.

Prereq: SPH 0368 recommended. Plays by Black American play-

wrights; examination of essays by Black critics; existing Black theatre in America; the aesthetics of twentieth century Black drama. (Former SPH 0369)

0581. Black Theatre: Play Writing Workshop. Cr. 4.

Prereq: SPH 0260, 0368, 0369 or consent of instructor. Practice in writing an original script on some subject related to the black culture in contemporary society.

0582. Black Theatre: Play Direction. (3,2). Cr. 4.

Prereq: SPH 0260 or 0368, 0263, 0462 and 0464 or consent of instructor. Producing the one-act play by black authors. Students will direct plays on University student stage.

0584. Development of the Drama I: Greek to Elizabethan. Cr. 4.

Plays from the Greek to the Elizabethans, including Shakespeare; relation of drama to an era and its theatre.

0585. (ENG 10516) Writing for Theatre Film and Television. Cr. 4 (Max. 8).

Prereq: ENG 0316 or consent of instructor. Comparative study in structure of stage, radio and television plays, motion picture scenarios. Practice in writing either an original script or an essay on some phase of contemporary dramatic form. Actual production of some scripts in experimental theatre and radio studios of Department of Speech.

0588. Theatre History II. Cr. 4.

Prereq: SPH 0569 or consent of instructor. Continuation of Speech 0569. Italian Renaissance through eighteenth century.

0589. Introduction to Scene Painting. (2,4). Cr. 3.

Prereq: SPH 0263 or consent of instructor. Laboratory and demonstration course as an introduction to painting for the stage, with an emphasis on the materials, texturing techniques, three-dimensional effects and beginning work from painter's elevations.

0660. Studio I. Cr. 4.

Prereq: graduate standing. Open only to members of the Hilberry Acting Company and M.A., M.F.A., and Ph.D. candidates in direction; or by consent of instructor. Examination and analysis of a specific dramatic genre, style, or historical period as it relates to the arts of the actor and director. Correlative performance projects. Subject matter will be coordinated with the repertory of the Hilberry Theatre.

0661. Creative Drama for Children. Cr. 4.

Creative dramatics and formal playmaking for and by children.

0662. Children's Theatre Play Production. Cr. 4.

Prereq: SPH 0566 or 0661 recommended. Theory and practice of organization, selection, direction, production of plays for children's audiences in schools, churches, communities.

0663. Studio II. Cr. 4.

Prereq: SPH 0660. Open only to members of the Hilberry Acting Company and M.A., M.F.A., and Ph.D. candidates in direction; or by consent of instructor. Continuation of Speech 0660.

0664. Advanced Scene Painting. (2,4). Cr. 3.

Prereq: SPH 0589 and consent of instructor. Laboratory and demonstration course for the design or technical theatre student. Materials, techniques, styles of scene painting.

0665. Problems of Theatre Organization and Management. Cr. 3.

Prereq: 10-12 credits of theatre courses. Theatre curriculum, management, organization, exploitation, financing, and other phases

of university, community, and high school theatre. Laboratory experience in the University theatres.

0666. Costume Design for the Theatre. Cr. 3 (Max. 6).

Prereq: SPH 0462 or consent of instructor. Advanced phases of costume design and construction. Source material for historical and national costumes.

0667. Studio III. Cr. 4.

Prereq: SPH 0663 or consent of instructor. Open only to members of the Hilberry Acting Company and M.A., M.F.A., and Ph.D. candidates in direction; or by consent of instructor. Continuation of Speech 0663.

0668. Advanced Stage Lighting Design. Cr. 4 (Max. 8).

Prereq: SPH 0464 or consent of instructor. Light design, color, optics, instruments, and control as related to advanced problems in stage lighting. Laboratory projects coordinated with University Theatre productions.

0684. Advanced Stage and Film Makeup. Cr. 3.

Prereq: SPH 0463 or consent of instructor. Continuation of basic principles applied in SPH 0463 with accent on new makeup materials; experimentation with prothesis and design for problem makeup.

0688. Development of the Drama II: Elizabethan to Nineteenth Century. Cr. 4.

Plays from the Elizabethan and Jacobean periods to the mid-nineteenth century; relation of drama to an era and its theatre.

0760. Development of the Drama III: Modern Drama. Cr. 4.

Plays and theories of theatre from the mid-nineteenth century to modern times; relation of drama to an era and its theatre.

0761. Trends in the Modern Theatre. Cr. 4.

Expressionism, Epic Theatre, Theatre of the Absurd, Theatre of Cruelty and other movements since World War I. Relation of dramatic theory to theatrical practice.

0762. Advanced Technical Theatre Problems. Cr. 3.

Prereq: consent of instructor. Advanced study and research in scenic design, theatre architecture, stagecraft, lighting. Projects and reports.

0764. Studies in Dramatic Criticism. Cr. 4.

Analysis of selected classical critical texts in relation to dramatic literature and production; emphasis on ancient Greek and Renaissance and Elizabethan theatre. Topics to be announced in *Schedule of Classes*.

0765. Studio IV. Cr. 4.

Prereq: SPH 0667 or consent of instructor. Open only to members of the Hilberry Acting Company and M.A., M.F.A., and Ph.D. candidates in direction; or by consent of instructor. Continuation of Speech 0667.

0766. Studio V. Cr. 4.

Prereq: SPH 0765 or consent of instructor. Open only to members of the Hilberry Acting Company and M.A., M.F.A. and Ph.D. candidates in direction; or by consent of instructor. Continuation of Speech 0765.

0767. Advanced Repertory Theatre. Cr. 1-4 (Max. 9).

Prereq: consent of director, University Theatre. Continuation of Speech 0560. Supervised experience in the Classic Theatre repertory program.

0768. Advanced Theatre Laboratory. Cr. 1-4 (Max. 4; M.F.A. students max. 12 with consent of instructor).
Supervised laboratory practice in technical theatre and theatre management.

0769. Theatre History III. Cr. 4.
Prereq: SPH 0569 and 0588 or consent of instructor. Continuation of Speech 0588. From the nineteenth century continental theatre through the modern theatre.

0860. Advanced Theatre Practicum. Cr. 1-3 (Max. 16).
Prereq: consent of theatre staff. Public performance in the dramatic productions of the University's Bonstelle, Studio, and Children's Theatres. Credit determined by complexity of dramatic role performed.

0869. Seminar in Theatre. Cr. 2-4 (Max. 8).
Prereq: SPH 0764, 0769 or consent of instructor.

Radio and Television

0270. Introduction to Radio, Television, and Film. (3,2). Cr. 4.
History and regulation of the broadcast and film media. Social and economic implications. Laboratory projects in fundamentals of broadcasting.

0271. Radio and Television Announcing. Cr. 4.
Prereq: SPH 0270. Theory and practice in applying principles of performance to broadcast media.

0272. Basic Television Production Techniques. Cr. 4.
Prereq. or coreq: SPH 0271. Materials fee: \$10. Theory and practical application of materials and techniques used in television production.

0273. Mass Media Appreciation and Criticism. Cr. 4.
Materials fee: \$5. Cultural and aesthetic considerations of mass media.

0274. Writing for Radio-Television-Film. Cr. 4.
Prereq. or coreq: SPH 0270. Application of writing principles to the mass media. Various forms of copy: continuity, commercials, public service announcements, news, features, documentary and drama.

0275. Radio, Television, Film Laboratory. Cr. 1 (Max. 4).
Prereq: written consent of instructor. Practical experience in workshop projects.

0370. Mass Media and the Black Community. Cr. 4 (Max. 8).
Speech 0270 recommended. May be repeated only with consent of chairman. Analysis of broadcast programming, films and periodicals intended to serve the interests of minority audiences, including the development of criteria for their evaluation and improvement. Professional opportunities for minorities in media.

0371. Radio Production. Cr. 4.
Prereq: SPH 0271. Materials fee: \$5. Theory and practice in production techniques.

0372. Television Performance. Cr. 4.
Prereq: SPH 0271. Materials fee: \$10. Practical application of the principles and techniques of television performance.

0375. Advanced Television Production Techniques. Cr. 4.
Prereq: SPH 0272. Materials fee: \$10. Principles and application of graphic materials, design and staging concepts, lighting techniques and studio operation.

0570. Audience Measurement and Survey Techniques in Mass Media. Cr. 4.
Prereq: SPH 0270 or consent of instructor. Theory and application of research techniques in audience measurement.

0572. Broadcast Management. Cr. 4.
Prereq: SPH 0270. Principles of radio and television management; objectives, procedures, and policies in radio and television station development and operation. Discussions with management executives; research in market analysis.

0574. Production Facilities and Studio Operations. Cr. 4.
No credit for radio-television-film majors. Theory and practice of television production.

0576. Television Directing. Cr. 4.
Prereq: SPH 0375; junior, senior or graduate standing. Materials fee: \$10. Principles of direction through demonstration, discussion, readings, laboratory productions; selected readings, laboratory productions and demonstrations leading to the organization and execution of the studio director's artistic responsibilities.

0578. Advanced Radio, Television, Film Writing. Cr. 4.
Prereq: SPH 0274. Principles and practice in documentary and drama.

0580. Mass Communications and Society. Cr. 4.
Theoretical and practical research on the social functions and effects of mass media.

0583. International Communications. Cr. 4.
Prereq: SPH 0270. World broadcast systems, organizations, and objectives. Political, economic and legal foundations of international media systems.

0675. Mass Communications Laboratory. Cr. 1 (Max. 2).
Prereq: written consent of instructor. Supervision of special communication projects.

0677. Advanced Projects in Radio, Television and Film. Cr. 1-4 (Max. 8).
Prereq: senior or graduate standing and written consent of instructor. Advanced study and projects.

0772. Seminar in Media Production. Cr. 3 (Max. 9).
Prereq: written consent of instructor. Research in individual problem areas of media production, such as, legal requirements, union involvement, the logistics of studio and location arrangements; or the roles of various support agencies.

0780. Radio and Television Program Management. Cr. 4.
Prereq: SPH 0572. Practical and philosophical approaches to program planning; development of market analyses and demographics relating to program production and scheduling; program types, structure and evaluation.

0781. Seminar in Mass Communications. Cr. 3 (Max. 9).
Prereq: consent of instructor. Topics vary according to instructor. Consult with area office.

0782. Seminar in Mass Media Research. Cr. 3.
Topics vary according to instructor. Consult with area office.

0784. Seminar in Instructional Aids and Media. Cr. 3.

Organization of the communications media to serve learning principles and objectives; application and analysis of the unique qualities of film, radio and television in learning.

0785. Seminar in Broadcast Management. Cr. 3.

Prereq: SPH 0572. Selected current major problems in broadcast management; public issues and management's responsibilities and responses; major legal cases and FCC landmark decisions in broadcasting.

0786. Content Analysis of Mass Communications. Cr. 3.

Prereq: consent of instructor. Theoretical and practical analysis of media content.

0787. Criticism of Mass Media. Cr. 4.

Advanced analysis and evaluation of contemporary mass media.

0788. Educational Utilization of Mass Communications. Cr. 3.

Use of various communications media in a variety of educational situations and as library adjuncts or in instructional media centers.

0880. Seminar in Computer Assisted Instruction (ELD 7764). Cr. 3.

Prereq: consent of instructor. Application and evaluation of command languages, files and programs of computer based or controlled instructional languages to the communications media.

0883. Seminar in International Communications. Cr. 3.

Prereq: SPH 0583. Continuation of Speech 0583.

Film

0286. History of Motion Pictures I. Cr. 4.

Materials fee: \$10. Similarities and differences between cinema and other art forms; the motion picture as a modern visual art; films representative of important periods of advancement.

0387. Basic Cinematography Techniques (ART 0338). Cr. 4.

Materials fee: \$5. Introduction to principles of cinematography utilizing super 8mm equipment; cameras, lenses, film stock, screen continuity and lighting; projects in silent super 8mm filmmaking.

0579. Film in the Classroom. Cr. 4.

Prereq: SPH 0270 or graduate standing. Curriculum approach to film education for teachers. Relevance of film study in secondary and elementary school curricula; critical and curricular approaches to film and its use in the classroom; techniques for analysis and discussion of film.

0586. History of Motion Pictures II. Cr. 3.

Prereq: SPH 0268 or consent of instructor. Materials fee: \$10. Continuation of Speech 0286. Motion pictures of significant experimentation in film art.

0587. Advanced Cinematography Techniques. Cr. 4.

Prereq: SPH 0387. Materials fee: \$10. Advanced filmmaking techniques in 16mm; camera work, pictorial composition, editing and sound; silent projects, final film through sound film interlock projection.

0686. Motion Picture Animation Techniques. Cr. 4.

Prereq: SPH 0587. Materials fee: \$10. Theory and application of various forms of film animation.

0687. Motion Picture Production. Cr. 4.

Prereq: SPH 0587. Materials fee: \$10. All aspects of sound motion picture production including emphasis on scripting, budgeting, shooting and direction of sound films, post-production, sound, sound mixing and AB roll editing.

0887. Seminar in Film. Cr. 3 (Max. 6).

Prereq: consent of instructor. Materials fee: \$10. Topics will vary with instructor. Consult with area office.

Journalism (JOU)

0215. News Reporting. Cr. 4.

Prereq: sophomore standing. A basic reporting course: getting the facts and writing them well. Typing essential.

0217. Advanced Reporting. Cr. 4.

Prereq: JOU 0215. Writing more complex news stories.

0301. News Editing. Cr. 4.

Prereq: JOU 0217. Copy reading, headline writing and makeup.

0308. Magazine Article Writing. Cr. 4.

Prereq: JOU 0217. Writing non-fiction articles for magazines with stress on marketing.

0311. History of American Journalism. Cr. 4.

Prereq: JOU 0217; two American history courses. Development of the American press from colonial times.

0315. Newspaper Reviewing. Cr. 4.

Prereq: JOU 0217. Theory and writing of book, theater, music, film, television and other reviews; assessment and examples of criticism in newspapers.

0317. Editorial and Column Writing. Cr. 4.

Prereq: JOU 0217. Writing of editorials; discussion of op-ed pages; writing the personal column.

0320. Reporting Public Affairs. Cr. 4.

Prereq: JOU 0217. News coverage and discussion of courts, legislative bodies; city, county, state, federal agencies; other government reporting; beat reporting.

0370. Radio and Television News Reporting. Cr. 4.

Prereq: JOU 0215. Fundamentals and techniques of preparing news for broadcasting. Lectures and laboratory.

0375. Advanced Radio and Television News Reporting. Cr. 4.

Prereq: JOU 0370. Advanced techniques in broadcasting news; practical experience at WDET and other local radio and TV stations.

0401. Journalism Internship. Cr. 4.

May be repeated only with consent of journalism adviser. Prereq: JOU 0217. Open only to journalism majors. Work assignments on daily or weekly campus and community newspapers, radio-television stations and public relations advertising agencies.

0425. Photojournalism. Cr. 4.

Prereq: JOU 0217 or consent of adviser. Open only to journalism majors. Introduction to news photography. Lecture and discussion of the theories and problems of photojournalism. Basic camera and darkroom techniques; the photographer's feel for people, places, events. Students must have their own cameras.

0426. Advanced Photojournalism. Cr. 4.

Prereq: JOU 0425. Open only to journalism majors. Advanced techniques of camera use and laboratory practices. Problems in F-stops, camera angles, depth of field, lighting. News event coverage, picture stories and photo essays for newspapers and magazines. Students must be able to develop and print own photos at home.

0490. Directed Study. Cr. 4 (Max. 4).

Prereq: JOU 0217. Open only to journalism majors. May be repeated only with consent of adviser. Research problems of other important aspects of the media.

0510. Law of the Press. Cr. 4.

Prereq: JOU 0217. Laws dealing with libel, invasion of privacy, contempt of court, copyright; laws affecting newspapers and other mass media as a business; the problems of pornography and obscenity.

0560. Industrial Editing. Cr. 4.

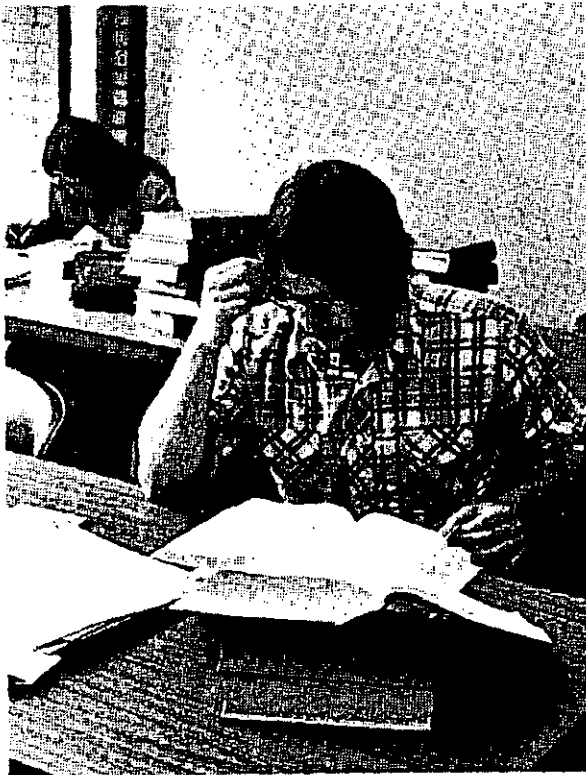
Prereq: JOU 0301. Special projects of corporate and industrial journalism; publishing employee publications.

†0575. Investigative Reporting. Cr. 4.

Prereq: JOU 0320 and written consent of department chairman. May not count toward a graduate major in journalism, but may be elected for minor or cognate credit. Advanced reporting techniques that involve extensive use of public records and the development of news sources.

0610. Senior Seminar. Cr. 4.

Prereq: Senior standing; consent of adviser; five courses in journalism. Major media problems and policies; research projects; required reading lists; meetings with top editors and media supervisors.



STATISTICS

COURSES OF INSTRUCTION¹ (STA)

0102. Elementary Statistics. Cr. 4.

Prereq: one and one-half years high school algebra. This course is not to be counted as a mathematics course by mathematics majors. Notions in probability; descriptive statistics; binomial and normal distributions; elements of statistical inference (estimation theory and testing hypotheses).

In addition to the interdepartmental course described above, several specialized advanced courses are offered by individual departments:

ECO 0520—Economic and Business Statistics I.

ECO 0521—Economic and Business Statistics II.

ECO 0722—Advanced Econometrics I.

ECO 0723—Advanced Econometrics II.

MAT †0503—Principles of Probability and Statistics For Social Scientists.

MAT †0504—Statistical Methods in Industry I.

MAT †0505—Statistical Methods in Industry II.

MAT 0580—Probability and Stochastic Processes I.

MAT 0581—Probability and Stochastic Processes II.

MAT 0582—Survey of Statistical Methods.

MAT 0583—Introduction to Theory of Games.

MAT 0700—Mathematical Statistics I.

MAT 0701—Mathematical Statistics II.

MAT 0781—Mathematical Foundations of Probability.

MAT 0782—Random Functions.

PSY 0310—Statistical Methods in Psychology.

SOC 0602—Social Statistics (S W 0746).

For description of these courses, and others, see the bulletin sections devoted to the individual departments.

The Department of Mathematics offers the degree of Master of Arts with a major in Mathematical Statistics. For particulars, see the mathematics section of the bulletin.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

URBAN PLANNING

Office: 428 Library Court

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PROFESSOR

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ASSOCIATE PROFESSORS

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ADJUNCT FACULTY

Harold J. Bellamy, Charles A. Blessing, Lawrence R. Greene, Sylvester Jones, John J. Musial, Sue M. Smock, Lonny Zimmerman

MASTER OF URBAN PLANNING

The profession of urban planning takes major responsibility in the development of comprehensive plans and programs for local communities, as well as larger governmental units. Programs visualize future conditions in light of social, economic and physical change, and provide an estimate of the community's long range needs for various facilities and services. Professional people work in a variety of areas ranging from such immediate concerns as developing plans for housing, transportation and rehabilitation of blighted sections to engaging in efforts to achieve an attractive and efficient community. The department seeks to prepare individuals for roles as urban planning generalists working for local community planning agencies and regional groups.

Admission—The urban planning program is open to all students who qualify for admission to the Graduate Division, and offers graduate courses leading to the degree Master of Urban Planning. Admission to the program is restricted to the fall and spring quarters. Because cross-listed courses from several departments in the College are an integral part of the program, students will face varying academic demands depending on their undergraduate backgrounds. It is recommended that students considering a major in urban planning take the Graduate Record Examination (aptitude section only). Application forms to the department are available from the Admissions Office of the Graduate Division, 116 Administrative Services Building. Applications must be submitted by June 1 (for the fall quarter) and by January 15 (for the spring quarter) to insure consideration for admission.

Degree Requirements—Specific requirements for the degree will be determined in the case of each applicant after the completion of approximately twenty credits in course work. At that time students will develop a *Plan of Work* in consultation with a permanent adviser. In general no less than the two year program recommended by the American Insti-

tute of Planners will be required for the degree. Prior completion of graduate courses equivalent to the requirements will form the only basis for reducing credits in any individual program, but in no case will a program of less than forty-eight credits be approved. The department anticipates that academic work will begin with courses at the 0500 or 0600 level. At present there are several required courses in the program covering the subjects of planning theory, methods, and practice: U P 0672 or 0692, 0671, 0701, 0712, and 0732. All *Plans of Work* will include at least twelve credits of course work at the 0700 or 0800 levels, excluding the essay group or thesis.

COURSES OF INSTRUCTION¹ (U P)

History and Theory

0501. Urban Planning Process. Cr. 2 or 4.

Prereq: consent of instructor. Scope and historical development of planning. Topics relevant to the practice of planning including theory, design, planning practice and social and physical development policy.

0511. (HIS 0514) Pre-Twentieth Century American Urban History in Comparative Perspective. Cr. 4.

Prereq: HIS 0201, 0202, 0203; or equiv. Cities in the context of commercialism, industrialism, colonialism and nationalism, compared with other cities in the world.

0521. (HIS 0515) Twentieth Century American Cities in World Context. Cr. 4.

Prereq: HIS 0201, 0202, 0203; or equiv. Growth, impact, and significance of the city in American history.

0531. (ANT 0606) Urban Anthropology (SOC 0606). Cr. 4.

Prereq: ANT 0210, 0520 or consent of instructor. Socio-cultural effects of urbanization in the developing areas of the world, particularly Africa, Latin America, Southeast Asia and India. The process of urbanization, the anthropological approach in the area of urban studies.

0601. Perception of the Environment. Cr. 4.

Perception and interpretation of the environment in urban areas; their natural and ambient characteristics. Analysis and development of inventory systems and their potential utility in urban spatial design.

0611. History of Physical Planning. Cr. 4.

Prereq: consent of instructor. Historical and physical aspects of urban planning as an expression of physical function, social order and cultural background.

0621. Contemporary Physical Planning. Cr. 4.

Prereq: consent of instructor. Emphasis on emerging concepts in urban design.

0631. Analysis of Urban Form. Cr. 2 or 4.

Prereq: consent of instructor. Introduction to urban form and the processes involved in development of urban design. The role of the urban designer in the social and technical aspects of community development.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

0641. Professional Aspects of Urban Planning. Cr. 2 or 4.
Prereq: consent of instructor. Readings in literature of urban planning. View of planning and planning process.

0671. Regional Development. Cr. 4.
Prereq: consent of instructor. Regional development and planning theory, including concepts of the region. Theoretical influences of transportation, resources, locational economic activity and urban spatial agglomerations and systems to the planning process.

0701. Planning and Decision Theory. Cr. 2 or 4.
Prereq: consent of instructor. Materials addressing the function of planning as a rationalization of social decision making processes. Theories of the planning process as human decision activity.

0751. Seminar in Urbanization and Regional Planning. Cr. 2 or 4.
Prereq: consent of instructor. Nature of regional planning and its relation to urban growth.

Urban Structure

0502. (SOC 0502) Urban Sociology. Cr. 4.
Prereq: consent of instructor. Ecological and social organization of city life. Metropolitan trend in the U.S., social problems created by it; various forms of control.

0512. Demographic and Social Studies of Urban Areas. Cr. 4.
Prereq: consent of instructor. Demographic structure and vital processes of the urban population; segregation; the functioning of social institutions and the social participation of the urban dweller.

0532. (GEG 0617) Physical Bases of Urban Ecology. Cr. 4.
Prereq: GEG 0120 or consent of instructor. Morphology, geology, climatology, pollution, hydrology, soil and vegetation of urbanized areas; use in planning.

0542. (GEG 0618) Selected Urban Problems. Cr. 4.
Prereq: GEG 0313 or consent of instructor. Identification and evaluation of urban problems. Topics to be announced in *Schedule of Classes*.

0552. (CSC 0501) Computers and Research. (LS 5496) (CRJ 0531) Cr. 4.
Prereq: one and a half units of high school algebra. Introduction to computing, data processing and computer utilization for research. Computer languages, library programs and their use, and job control languages.

0572. Transportation and Planning. Cr. 4.
Prereq: consent of instructor. Introduction to the role of transportation in the planning process involving both regional and urban considerations.

0582. (ECO 0586) Urban and Regional Economics I. Cr. 4.
Prereq: ECO 0101 and 0102 or consent of instructor. Introduction to the economic foundations of urban problems; land use, housing, poverty, transportation, local public finance; regional industry mix, income, growth, and development; the national system of cities and location of firms.

0592. (ECO 0587) Urban and Regional Economics II. Cr. 4.
Prereq: U P 0582. Seminar in selected topics in regional economic development, urban problems and public policy.

0602. (GEG 0614) The Metropolitan Region. Cr. 4.
Prereq: one course in geography or consent of instructor. Processes in metropolitan and megalopolitan development.

0612. (GEG 0613) Advanced Urban Geography. Cr. 4.
Prereq: GEG 0313 or consent of instructor. Urban patterns and functions. Process of urbanization, pre-industrial cities, the city and its region, the city's internal structure and the future of urban society.

0622. Sample Surveys. Cr. 4.
Prereq: consent of instructor. Fundamental notions concerning surveys and sampling; aspects of sample design, bias, and attitude surveys.

0632. (GEG 0615) Internal Structure of the City. Cr. 4.
Prereq: GEG 0313 or 0613 or consent of instructor. Internal structure of the city. Perception of the urban environment, spatial interaction and movement, models of structure and growth, migration to and within the city, ethnic and social areas, community extension, social processes and spatial form, and locating social institutions in the city.

0642. (SOC 0620) Social Change and Social Planning. Cr. 4.
Prereq: consent of instructor. Theories of social change; possibilities and limitations of social planning. History of outstanding planning experiments; case studies from industry, government, community planning. Social techniques aimed at promoting or resisting planned social change. Field trips in Detroit industry, government planning departments.

0652. (P S 0650) Problems of Urban Government. Cr. 4.
Prereq: consent of instructor. Problems of current significance.

0672. Quantitative Methods I. Cr. 4.
Prereq: consent of instructor. Statistical inference with emphasis on theory and applications, including central tendency, dispersion, hypothesis testing, correlation and regression.

0682. (GEG 0628) Marketing Geography. Cr. 4.
Prereq: one course in geography or consent of instructor. Factors underlying retail location and shopping center development; evaluation of population, income levels, access and competition for location decisions; techniques of sales potential estimation; retail impact on urban land use.

0692. Quantitative Methods II. Cr. 4.
Prereq: U P 0672 or equiv. Multivariate analysis and computers with emphasis on theory and applications, including: matrix algebra, vector spaces, linear and non-linear models, principal components analysis, graph theory, and programming models.

0702. (SOC 0702) Problems of Urban Society. Cr. 2-4.
Prereq: consent of instructor. Application of social science research; theories underlying different approaches to applied sociology; value assumptions of planning commissions and administrative agencies.

0712. Methods in Urban Planning. Cr. 2 or 4.
Prereq: consent of instructor. Application of selected research approaches in urban planning studies.

0732. Planning Studio I. Cr. 4.
Prereq: consent of instructor. Spatial study of urban areas, with special reference to land use, circulation and design concepts for such functional units as residential neighborhoods, shopping centers and open space.

0742. Planning Studio II (2.4). Cr. 4.

Prereq: UP 0732. Continuation of Urban Planning 0732. Analysis and development of community plan. Decision making roles in urban design.

0752. Urban Systems Models. Cr. 4.

Prereq: UP 0672 and consent of instructor. Structure of urban systems and interdependencies among subsystems. Predictive growth models with emphasis on regional land use, transportation and communication system models.

0762. Gaming Simulation. Cr. 4.

Prereq: consent of instructor. Introduction to game theory and the application of gaming simulation to urban and regional studies.

0802. Projects in Urban Planning Techniques. Cr. 2 or 4 (Max. 12).

Prereq: consent of instructor. Development and application of research design to specified urban problems, with emphasis on independent study.

0812. Seminar in Land Use Planning. Cr. 4 (Max. 8).

Prereq: consent of instructor. Analysis of development plans for new and existing communities, selected topics.

Planning Implementation

0525. (ECO 0515) State and Local Finance. Cr. 4.

Prereq: consent of instructor. Taxation, expenditure and debt management problems of state and local governments; grants-in-aid, subsidies, shared revenues and coordination of the financial policies of federal, state, local governments. Attention to problems, policies, and practices of governmental units in Michigan and other states.

0535. (P S 0511) Public Opinion and the Political Process (SOC 0511). Cr. 4.

Prereq: consent of instructor. Role of public opinion in the political system. Factors important in the formation of political opinions; assessment of the opinions of mass and specialized publics for the political decision-making process.

0545. (P S 0533) Bureaucracy, Public Policy, and Power Structure. Cr. 4.

Prereq: consent of instructor. Theory and development of modern governmental bureaucracy, its role in development of public policy. Co-optation and constituency building; role of bureaucracy in power structure.

0555. (P S 0552) Metropolitan Politics and Development. Cr. 4.

Prereq: consent of instructor. Alternative interpretations of forces and factors shaping metropolitan growth. Interaction of community groups, power structure, intergovernmental relations.

0585. (P S 0520) Introduction to Public Administration. Cr. 4.

Prereq: P S 0101 or consent of instructor. Governmental structure and administrative organization. Concepts and techniques of public management; impact on modern society.

0595. (P S 0540) American Legal Systems and Processes. Cr. 4.

Prereq: P S 0101. Legal institutions, processes and doctrines; their relation to public policy and solutions to social problems.

0605. Legal Aspects of Planning. Cr. 4.

Prereq: consent of instructor. Status of legal issues concerning

urban planning activity and implementation. Implications for planning practice, scope of police powers, intergovernmental relations and plan authority.

0615. Community Development Programs. Cr. 2 or 4.

Prereq: consent of instructor. Urban renewal in comprehensive planning, covering such topics as the workable program, community renewal program and area redevelopment.

0645. (SOC 0646) Dynamics of Social Action. Cr. 4.

Prereq: consent of instructor. Nature, theory, forms of social action in American society; organization and planning for social action; relationship of social action and social change.

0655. Social Planning. Cr. 4.

Prereq: consent of instructor. Social planning process as a comprehensive, problem and goal-oriented approach to community welfare and urban problem solving.

0665. Social Policy Planning. Cr. 4.

Prereq: consent of instructor. Scope of social planning in urban areas and its relation to the total development process of communities.

0675. Land Use Controls. Cr. 2 or 4.

Prereq: consent of instructor. Discussion of techniques available to guide land development. New concepts in zoning, subdivision regulations. Timing and sequence of land development.

0685. (GEG 0626) Problems of Resource Management and Development. Cr. 4.

Prereq: one course in geography or consent of instructor. Selected problems in resource management and resource development.

0715. Seminar in Fiscal Aspects of Urban Planning. Cr. 4.

Prereq: consent of instructor. Costs and revenues of urban development in relation to land uses.

0725. (SOC 0703) Urban Stratification and Power Structure. Cr. 4.

Prereq: consent of instructor. Social class and power structure in metropolitan community; community power and decision-making emphasizing the process of urban planning.

0735. (P S 0734) Administrative Aspects of Urban Planning (SOC 0704). Cr. 4.

Prereq: consent of instructor. Goals and policy structure for urban planning, regional planning, zoning, and related administrative problems.

0755. (P S 0747) Urban Political and Social Change.

Cr. 4 (Max. 4 for L.A. students; others, max. 12).

Prereq: admission to Urban Studies Corps of Center for Urban Studies. Problems in policy of housing, health, employment, education, and environmental pollution. Power and the contributions of various disciplines to programs of effective political and social change.

0765. (P S 0772) Regional and Metropolitan Systems. Cr. 4.

Special district authorities, councils of governments, regional economic authorities, and other structures designed to facilitate collaboration across subnational and national boundaries.

0775. (P S 0771) Intersystem Relations. Cr. 4.

Relations between organizations, municipalities and other metropolitan area authorities, and different levels of government.

Other Courses

0530. Urban Planning Issues. Cr. 2 or 4 (Max. 12).

Prereq: consent of instructor. Domestic and international developments in urban planning. Topics to be announced in *Schedule of Classes*.

0540. Planning Workshop. Cr. 4.

Prereq: consent of instructor. Selected aspects of the community planning process as a team effort. Techniques of planning practice.

0550. Urban Design Elements. Cr. 4.

Prereq: consent of instructor. Introduction to the role of urban design and the concept of design criteria; design variables and terminology.

0560. Housing Development. Cr. 4.

Prereq: consent of instructor. Its physical, social, and economic aspects, dealing with new development as well as rehabilitation.

0600. Introductory Planning Topics. Cr. 4 (Max. 12).

Prereq: consent of instructor. Development and focus of emerging trends in the profession.

0604. Field Studies on Urban Problems. Cr. 4.

No credit for urban planning majors; no graduate credit. Prereq: U S 0501. Field research on selected urban problems. Students prepare applied research report based on agency-generated data, interviews with public officials, and analysis of public documents and related studies.

0610. Projects in Urban Planning. Cr. 4 (Max. 8).

Prereq: consent of instructor. Individual problems in planning. (Former U P 0800)

0710. Research Topics. Cr. 4 (Max. 8).

Prereq: consent of instructor. Individual problems in urban planning.

0797. Seminar. Cr. 2 or 4 (Max. 16).

Prereq: consent of instructor. Specialized study and research. Topics to be announced in *Schedule of Classes*.

0799. Master's Essay Direction. Cr. 4.

Prereq: consent of adviser.

0810. Planning Internship. (I,16), Cr. 4 (Max. 8).

Prereq: written consent of instructor. Offered for S and U grades only. Supervised field experience with public or private planning agency.

0890. Directed Study. Cr. 2-8 (Max. 12).

Prereq: consent of adviser; written consent of graduate officer. Independent reading and research.

0899. Master's Thesis Research and Direction. Cr. 2-12 (12 required).

Prereq: consent of adviser.

URBAN STUDIES

Office: 838 Mackenzie Hall

Co-Directors: Corinne L. Gilb and Wilbur Thompson

The Urban Studies Co-Major Program is an undergraduate interdisciplinary course of study leading to a bachelor's degree with a co-major designation. The co-major format enables students to graduate with two fields of major emphasis. The co-major program is flexible to serve a wide variety of different student needs and interests. "Urban" includes "sub-urban"; the spatial patternings of national urban networks as well as the inner life of individual cities; and broad historical, international comparative, economic or cultural concerns as well as specific practical problems.

Admission — A student must have met the entrance requirements of the University and the College of Liberal Arts to apply for this program. When he fills out the *Declaration of Major* form at the beginning of his junior year and has authorized approval for his major, he may then use the same form to apply for acceptance into the co-major program.

Requirements — Three core courses and thirty-two hours of urban-related elective courses, of which at least eight must be upper division. It is possible for some of the elective courses to count also toward satisfaction of the requirements of the major department or to fulfill college group requirements.

Core Requirements (12 credits):

Urban Studies 0200. Introduction to Urban Studies (GEG 0203), (ECO 0200) (HIS 0200) (P S 0200). Cr. 4.

Urban Studies 0401. Interdisciplinary Pro-Seminar. Cr. 4.

(CRJ 0600) Urban Studies 0600. Field Studies. Cr. 2-4 (Max. 8).

(FAC 0592) Urban Studies 0601. Supervised Field Experience. Cr. 4; field geography, field techniques and training, analysis of problems, preparation of reports; or any other 0600-level urban studies course.

Electives

The university offers a large number of urban-related courses from among which electives may be selected. The following list is not exhaustive:

Anthropology 0606 (SOC 0606) (U P 0531). Urban Anthropology. Cr. 4.

Art 0533. Interior Architecture. Cr. 4.

Art History 0600, 0601, and 0602 (HIS 0628, 0629, 0630).

Art and Architecture in America. Crs. 4, 4, 4.

Art History 0240. Survey of Western Architecture. Cr. 4.

Art History 0345. Modern Architecture from Walpole to Harris. Cr. 4.

Biology 0240. Plants and Human Affairs. Cr. 3.

Biology 0287. Human Heredity. Cr. 3.

Classics 0325. Urban Study of Ancient Rome. Cr. 4.

Economics 0586 (U P 0582). Urban and Regional Economics, I. Cr. 4.

Economics 0587 (U P 0592). Urban and Regional Economics, II. Cr. 4.

English 0385. Major Themes: Country and City in Afro-American Literature. Cr. 4.

FAC 0186. Survey of Early Child Care. Cr. 4.

FAC 0187. Survey of Gerontological Care Situations. Cr. 4.

FAC 0360. Determinants of Housing. Cr. 4.

FAC 0375. The Consumer and the Market. Cr. 4.

FAC 0500. Contemporary Issues Affecting Consumers. Cr. 1-4.

FAC 0575. Recent Trends in Consumer Affairs. Cr. 4.
 FAC 0664. Urban Family Housing. Cr. 4.
 Geography 0313. Introductory Urban Geography. Cr. 4.
 Geography 0568. Regions of Detroit. Cr. 4.
 Geography 0611. Politics and Urban Geography. Cr. 4.
 Geography 0613. (U P 0612) Advanced Urban Geography. Cr. 4.
 Geography 0614. (U P 0602) The Metropolitan Region. Cr. 4.
 Geography 0615. (U P 0632) Internal Structure of the City. Cr. 4.
 Geography 0616. Comparative Urban Systems. Cr. 4.
 Geography 0617. (U P 0532) Physical Bases of Urban Ecology. Cr. 4.
 Geography 0618. (U P 0542) Selected Urban Problems. Cr. 4.
 Geography 0619. Directed Study in Urban Geography. Cr. 2-4 (Max. 12).
 Geography 0635. Geography of Ethnic Groups in the United States. Cr. 4.
 History 0514. Pre-Twentieth Century American Urban History in Comparative Perspective. Cr. 4.
 History 0515. (U P 0524) Twentieth Century American Cities in World Context. Cr. 4.
 History 0614. Cities and Empires. Cr. 4.
 History 0615. Cities of the Advanced Industrial Countries and the Third World. Cr. 4.
 Near East 0503 (A H 0503). Great Cities of the Near East. Cr. 4.
 Political Science 0552 (U P 0555). Metropolitan Politics and Development. Cr. 4.
 Political Science 0553. Urban Political Process. Cr. 4.
 Political Science 0555. Comparative Urban Politics. Cr. 4.
 Political Science 0649. Politics and Local Justice. Cr. 4.
 Psychology 0360. Psychology of Social Behavior. Cr. 4.
 Psychology 0461. Experimenting with Social Interaction. Cr. 4.
 Psychology 0467. (ENV 0467) Environmental Psychology. Cr. 4.
 Psychology 0563. Group Dynamics Cr 4
 Psychology 0564. Attitudes. Cr. 4.
 Psychology 0566. (P S 0577) Psychology of Political Leadership. Cr. 4.
 Sociology 0202. Social Problems. Cr. 4.
 Sociology 0408. Race Relations in the United States. Cr. 4.
 Sociology 0502. (U P 0502) Urban Sociology. Cr. 4.
 Sociology 0540. (CR) 0456) Sociology of Crime. Cr. 4.
 Sociology 0580. (S W 0718) Population in Modern Society. Cr. 4.
 Sociology 0640. Technology and Society. Cr. 4.
 Urban Planning 0501. Urban Planning Process. Cr. 4.
 Urban Planning 0671. Regional Development. Cr. 4.

Upon the approval of an Urban Studies adviser, the student may also elect courses in philosophy, computer science, statistics, architectural drafting, journalism or speech pertaining to mass media, or in colleges outside Liberal Arts — depending on the student's overall plan of study. Some urban-related careers require special training in natural sciences and/or advanced mathematics.

COURSES OF INSTRUCTION' (U S)

0200. Introduction to Urban Studies (GEG 0203) (ECO 0200) (HIS 0200) (P S 0200). Cr. 4-5.

Prereq: sophomore standing. Urban phenomena both past and present, including the quality and nature of urban life; major concerns of urban areas; perspectives and techniques of various urban-related disciplines. Topics to be announced in *Schedule of Classes*.

0401. Interdisciplinary Pro-Seminar. Cr. 4.

Prereq: U S 0200. Undergraduate credit only. Interdisciplinary topics to be announced in *Schedule of Classes*.

See page 661 for interpretation of numbering system, signs and abbreviations.

0600. (CRJ 0600) Field Studies. Cr. 4 (Max. 4)
 Undergraduate credit only. Prereq: U S 0200. Supervised field work in a criminal justice setting.

0601. (FAC 0592) Supervised Field Experience. Cr. 2-4 (Max. 4).
 Undergraduate credit only. Prereq: U S 0200. Supervised field experience (concerning housing interiors, human development, nutrition, consumer affairs, or clothing and textiles) designed to correlate classroom theory with practical work.

0603. (GEG 0650) Field Geography. Cr. 4-5 (9 required).
 Prereq: consent of instructor. No urban studies graduate credit. Field technique and training. Analysis of problems; preparation of reports.

For other Urban Studies 0600-level courses, consult the *Schedule of Classes*.

WOMEN'S STUDIES

Office: 544 Mackenzie Hall

Director: Marilyn L. Williamson

The basic philosophy of the Women's Studies Co-Major Program is to augment existing curricula and to stimulate development of courses and research within traditional disciplines. The aims of the program are several:

(1) to put women students in touch with their own historical, social, and cultural heritage; (2) to help them define their own values and goals through study of contemporary environment and their place in it from the variety of perspective supplied by a multi-disciplinary approach; (3) to open for all students hitherto neglected areas of study and research related to women within and beyond the traditional disciplines; (4) to relate the experience of various courses in a structure that has coherence and usefulness for the individual student; (5) to explore with students the contributions women have made to society, the arts, the sciences, and the human spirit through their work and through their lives. The most effective means to these ends lies in keeping women's studies in the curricular mainstream for mutual refreshment, challenge, and enrichment.

The program is designed around a minimal number of core courses and completed by the election of thirty-six credits in elective courses, for a total of forty-eight credits. The core courses are as follows:

English 0377 — Women's Studies I: Women's Lives — will analyze autobiographical and biographical materials — past and present — to see how ordinary women's lives have been shaped by their environment, how they have reacted creatively with it, how they have confronted problems and found solutions to them, how their values, aspirations, and even failures can inform the lives of students today. A variety of syllabi will be available and the course will be taught using different materials with the same basic aims. Students may therefore elect the course to a maximum of eight credits, four of which fulfill the core requirement and four applied to group (1) of the elective portion of the co-major. The course will be taught at least two quarters a year.

Political Science 0580 — Women's Studies II: Women in American Political and Economic Life — will address a series of critical issues in the lives of American women today from a multi-disciplinary approach including their economic, political, and legal aspects. The course will be team-taught and will be offered once a year.

Psychology 0495 — Women's Studies III: Women in Contemporary Society — provides the student with the opportunity to do a substantial research project and to review the current state of the field of women's studies with regard to issues, methodology, and research developments. The student's project would usually but not necessarily make use of materials and methods drawn from the individual's major, and the class sessions would be principally devoted to a general review of the field.

440 *College of Liberal Arts*

The elective courses must be chosen from the list of approved courses below, according to the following distribution:

(1) At least twelve credits in courses from the fields of American studies, art history, black studies, English, Greek and Latin languages and literatures, history, Near Eastern and Asian languages and literatures, philosophy, Romance and Germanic languages and literatures, Slavic and Eastern languages and literatures, speech communication, theatre, and journalism.

(2) At least twelve credits in courses from the fields of anthropology, economics, family and consumer resources, political science, psychology, and sociology.

(3) At least one course outside the College of Liberal Arts. Courses included in the Women's Studies program may count toward satisfying the departmental major as well as the core requirements and electives of the co-major. An Advisory Committee will review possible courses and decide on a final approved list.

Students interested in the Women's Studies Co-Major should apply to Associate Dean Marilyn L. Williamson, Director of Women's Studies, 554 Mackenzie Hall.

Approved Elective Courses

Liberal Arts

Anthropology

- 0631 — Comparative Family Patterns of American Ethnic Groups
- 0633 — Comparative Kinship and Marriage

Economics

- *0240 — Women in American Political and Economic Life

English

- 0277 — Introduction to Women's Studies through Literature
- *0377 — Women's Lives

The following courses when appropriate:

- 0340 — English Authors
- 0370 — American Authors
- 0380 — Major Themes in World Literature
- 0385 — Major Themes in English and American Literature
- 0430 — Poetry as a Literary Genre
- 0440 — Prose Fiction
- 0450 — Intellectual Prose
- 0460 — Drama
- 0465 — Folklore
- 0571 — Periods in American Literature
- 0581 — Periods in English Literature
- *0600 — courses with senior standing

Family and Consumer Resources

- 0180 — Individual Development through Family Interaction
- 0186 — Survey of Early Child Care

* Core courses, listed for information, must be taken for co-major. English 0377 (History 0377) must be taken once, but may be taken again as an elective in group one, provided the content is not repetitive.

- 0385 — Child Development in Day Care Setting
- 0500 — Contemporary Issues Affecting Consumers (when appropriate)
- 0686 — Studies in Child Rearing
- 0687 — Contemporary Issues in the American Family
- 0688 — New Perspectives in Human Development (when appropriate)

Classics

- 0319 — Women in Classical Antiquity

History

- *0377 — Women's Lives
- 0520 — Women in American Life and Thought

Near Eastern

- 0202 — Women in the Near East

Political Science

- 0579 — Women and Politics
- 0580 — Women in American Political and Economic Life

Psychology

- *0425 — Psychology of Women
- 0438 — Human Sexuality
- 0540 — Overview of Life Span Development

Romance and Germanic

The following courses may be taken when appropriate:

- FRE 0677 — Studies in French Literature
- GER 0679 — Studies in German Literature
- ITA 0690 — Studies in Italian Literature
- SPA 0668 — Studies in Hispanic Literature

Sociology

- 0506 — The Family
- 0569 — Sociology of Sex Roles

Speech Communication, Theatre, and Journalism

- 0316 — Contemporary Persuasive Campaign and Movements (when appropriate)
- 0522 — Communication in the Area of Human Sexuality

Basic Law

- 0638 — Family Law
- 0686 — Sex-Based Discrimination

Monteith

- 0451 — Methods and Problems in History of Women
- 0452 — Psycho-Biology of Women

Students who have *already* elected any of the courses on the approved list may receive credit toward the co-major for those courses, even though it did not exist at the time they took the courses, provided the course content is appropriate where the specification is made in the list.

Students should note that electives should be selected according to the distribution requirements specified above.

Students may find the pages in the *Schedule of Classes* entitled "Courses Related to Women's Experiences" useful in locating courses that are suitable for electives in the co-major, but they should be cautioned that those pages are by no means exhaustive in listing approved courses available in a given quarter. Moreover, some courses listed there may not be approved for elective credit for the co-major.

COURSES OF INSTRUCTION¹

ENG 0377. Women's Studies I: Women's Lives (HIS 0377). Cr. 4 (Max. 8).

Autobiographical and biographical materials to gain an understanding of individual women's lives within a cultural milieu.

ECO 0240. Women's Studies II: Women in American Political and Economic Life (P S 0580). Cr. 4.

No graduate credit. Interdisciplinary analysis of current issues affecting women in the United States: political participation, employment and earnings; discrimination; women's contributions to family income; child care; the women's movement; laws and the Equal Rights Amendment.

PSY 0495. Women's Studies III: Women in Contemporary Society. Cr. 4.

Prereq: ENG 0577 or HIS 0377 and ECO 0240 or P S 0580; research methodology course in student's major field. Research areas dealing with women; discussion and critical analysis of research methodology on women; developmental research projects dealing with women.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.



INTERDISCIPLINARY LIBERAL ARTS

COURSES OF INSTRUCTION¹ (ID)

The courses listed here are of an interdisciplinary nature. They reflect the development of programs to meet the needs of students for study covering a wide range of substantive areas, particularly those of strong current interest.

0190. Contemporary Issues and Problems. Cr. 1-4 (Max. 8).
Offered for S and U grades only. Lectures, assigned readings, class discussion on topics of current significance, with emphasis on an academic, objective study of current problems and crises.

0390. Black Studies I (BKS 0390). Cr. 4 (Max. 12).
An interdisciplinary seminar to investigate the theory and practice of contemporary black social and political thought, with reference to black intellectual history.

0490. Black Studies II (BKS 0490). Cr. 4.
An interdisciplinary seminar to explore the origins — in literature, music, the plastic arts — of black America.

0590. Black Studies III (BKS 0590). Cr. 4 (Max. 4).
An interdisciplinary seminar with pre-professional focus on issues, policies, and concerns pertaining to blacks and the black struggle in different professions.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

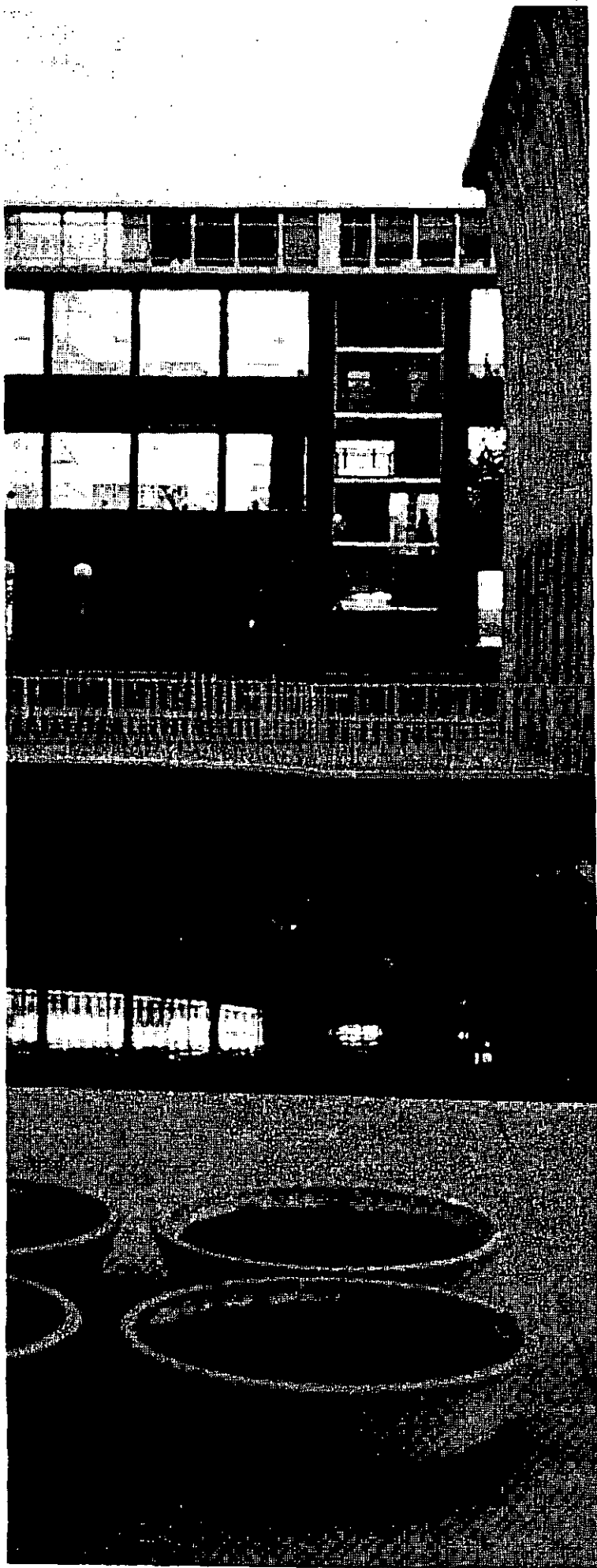
College of Liberal Arts Directory

- Dean554 Mackenzie Hall; telephone: 577-2514
- Associate Dean, Academic Programs
554 Mackenzie Hall; telephone: 577-2515
- Associate Dean, Academic Programs
576 Mackenzie Hall; telephone: 577-2522
- Associate Dean, Budget
554 Mackenzie Hall; telephone: 577-2516
- Associate Dean, Undergraduate Advising
262 Mackenzie Hall; telephone: 577-3326
- Assistant Dean, Graduate Advising
545 Mackenzie Hall; telephone: 577-2690
- American Studies834 Mackenzie; telephone: 577-2464
- Anthropology137 Manoogian; telephone: 577-2935
- Arts and Art History150 Art; telephone: 577-2980
- Biology210 Science; telephone: 577-2874
- Black Studies586 Student Center; telephone: 577-3434
- Chemistry277 Chemistry; telephone: 577-2580
- Computer Science646 Mackenzie; telephone: 577-2477
- Criminal Justice6001 Cass; telephone: 577-2705
- Economics960 Mackenzie; telephone: 577-3345
- English431 State; telephone: 577-2459
- Environmental Studies Program
201 Mackenzie; telephone: 577-4375
- Family and Consumer
Resources160 Old Main; telephone: 577-2500
- Geography225 State; telephone: 577-2701
- Geology201 Old Main; telephone: 577-2507
- Greek and Latin432 Manoogian; telephone: 577-3032
- History838 Mackenzie; telephone: 577-2525
- Honors Program16 Library Court; telephone: 577-3030
- Humanities403 Library Court; telephone: 577-3036
- Journalism212 Old Main; telephone: 577-2627
- Mathematics646 Mackenzie; telephone: 577-2479
- Music105 Music; telephone: 577-2623
- Near Eastern and
Asian Studies437 Manoogian; telephone: 577-3015
- Philosophy303 Library Court; telephone: 577-2474
- Physics135 Physics; telephone: 577-2721
- Political Science856 Mackenzie; telephone: 577-2630
- Psychology767 Mackenzie; telephone: 577-2800
- Romance and Germanic Languages
and Literatures487 Manoogian; telephone: 577-3002
- Slavic and Eastern Languages
and Literatures444 Manoogian; telephone: 577-3024
- Social Science232 Library Court; telephone: 577-2998
- Sociology101 Library Court; telephone: 577-2930
- Speech Communication
and Theatre585 Manoogian; telephone: 577-2943
- Urban Planning428 Library Court; telephone: 577-3335
- Urban Studies225 State; telephone: 577-2702

Mailing address for all offices:
Wayne State University
5980 Cass Avenue
Detroit, Michigan 48202

College of Lifelong Learning

DEAN: ROBERT E. HUBBARD



Foreword

Established in July 1973, the College of Lifelong Learning provides educational opportunities for adults at times and places that are convenient for them. Serving the adult student, the College offers its own curriculum leading to the Bachelor of General Studies degree. Academic courses at the graduate and undergraduate levels of other Wayne State University schools and colleges are also offered through cooperative arrangements with the College of Lifelong Learning.

Although most of the courses are scheduled in southeastern Michigan, the College offers many travel/study programs in the United States and overseas and makes extensive use of televised instruction.

Southfield Center

A major course site for the College is the Southfield Center. Located at 25610 West Eleven Mile Road, Southfield, Michigan, the Center has three buildings providing classrooms, administrative offices, a library, and student lounge.

Birmingham Center for Continuing Education

Wayne State University cooperates with The University of Michigan, Michigan State University, Eastern Michigan University, and Oakland University in offering credit and non-credit courses and workshops at the Birmingham Center for Continuing Education, 746 Purdy. Opened in the fall of 1976, the Center has made significant contributions to the cultural life of the community.

Other Course Locations

Other locations where classes have been held in schools, libraries and union halls include:

Adrian	Monroe
Birmingham	Mt. Clemens
Berkley	New Baltimore
Canton Township	Oak Park
Carleton	Petersburg
Dearborn	Port Huron
Detroit	Redford Township
Ecorse	Royal Oak
Eloise	St. Clair Shores
Farmington	Saline
Ferndale	Southgate
Flat Rock	Sterling Heights
Franklin	Temperance
Garden City	Trenton
Grand Haven	Troy
Grosse Pointe Farms	Warren
Hamtramck	Wayne
Harper Woods	Wixom
Jackson	Woodhaven
Lincoln Park	Wyandotte
Livonia	Ypsilanti

Because of the flexibility and constantly changing nature of our programs, students are asked to consult the University *Schedule of Classes* each quarter for current information regarding programs and locations.

PROGRAMS

For complete information regarding academic rules and regulations of the University, students should consult the General Information section of this bulletin, beginning on page 5. The following additions and amendments pertain to the College of Lifelong Learning.

BACHELOR OF GENERAL STUDIES

Weekend College Program

Office: Fourth Floor, Criminal Justice Institute, 6001 Cass

Director: Nola H. Tutag

The degree of Bachelor of General Studies was approved by the Board of Governors of Wayne State University on June 14, 1974. It is earned through the Weekend College Program (WCP) of the College of Lifelong Learning. The Program began in October 1973 and is designed to meet the educational needs of adult students.

Most currently enrolled WCP students hold full-time jobs, have family and other obligations, and take a full course load of three courses (twelve credits) during each quarter. Students who are unable to take a full course load may take fewer courses per quarter, depending on their individual time requirements.

The Program is approved for veterans. Many business and labor organizations underwrite costs for their employees who are eligible for educational assistance.

The Weekend College Program employs a combination of techniques to carry "classroom" instruction to students: television courses, once-a-week workshops, and weekend conferences.

Television courses are broadcast over local TV stations during early morning hours, early evening hours, and repeated on weekends.

Workshops, small discussion groups of approximately twenty students, meet once a week with an instructor. They are scheduled for maximum student convenience — any day of the week, any time of the day, at more than fifty-five locations throughout southeastern Michigan. Workshops are held in high schools, union halls, municipal facilities, and public libraries.

Weekend conferences are scheduled for two weekends per quarter. Most are held on the Wayne State University campus, but occasionally some are held at other locations as needed.

For a full load of twelve credits a quarter, the student takes simultaneously one four-credit course in each of the three delivery techniques listed above. Thus, the student will attend a workshop class once a week, attend weekend conferences twice during the quarter, watch television instruction for two and one-half hours per week, and carry out the assignments for each course.

In addition to the above listed "classroom" instruction techniques, the Upper Division student, when electing Theory and Method course work, may register for directed studies; when electing Advanced Studies course work, the student will participate in the Senior Seminar, out of which will come the senior essay or project.

Communication Skills — Members of the Program's Communication Laboratory team-teach with other faculty in designated workshops to improve student writing. As a degree requirement, the student must take at least one of these team-taught workshops in one of the lower divisional sequences. The following Weekend College courses are designed for the development of communication skills: Science and Technology — GST 2000, 2100, 2200; Social Sciences — GSS 2000, 2100, 2200; Humanities — GUH 1501, 2000, 2100, 2200.

Admission

For admission to the Program, students must have earned a high school diploma or a General Equivalency Diploma (G.E.D.) or have successfully completed the two-year non-credit sequence of courses offered by the Labor Studies Center of the Institute of Labor and Industrial Relations.

Registration

Registration is held continuously from the beginning of the last weeks of the preceding quarter through the official late registration period just before a quarter begins. Registration after the first day of classes requires a late fee.

Students new to the Weekend College Program register at orientation sessions. These sessions are conducted by a program counselor to acquaint new students with the Program. Orientations are held on campus near the WCP offices and at many other locations beginning about a month before classes start for each quarter. Thereafter, counselors visit the class workshops near the end of the quarter. Registration is also held at the WCP offices for several weeks prior to the start of classes.

Fees — For current fees, please see page 11.

Transfer of Credit and Residency

Course credits earned at community colleges and other institutions of higher education may be transferred to the Program provided: (1) the student has been accepted as a matriculated student in the College, and (2) the grades for these courses have been satisfactory. A maximum of ninety-six quarter credits (sixty-four semester credits) may be transferred from a community college.

An applicant for a Bachelor of General Studies degree from the Program must complete at least sixty credits in residence as a registered student in the Program, including twenty-four credits in Theory and Method courses and twelve credits in Senior Seminar, during which each student must prepare an essay or project to fulfill the degree requirement.

Transfer credits are recorded on the student's academic record at Wayne, but the grades earned in these courses are not transferred or recorded. Consequently, only the grades earned in the University are used in computing the honor point average for assessing the quality of work completed in residence here.

Probation

If the student's work averages below a 2.0 honor point average, the student will be placed on probation and an academic hold will be placed on his record. The student will then be required to obtain permission from the WCP Academic Service Office before registering. Such permission will be granted only after an interview with the student.

Veterans' Eligibility and Benefits

Veterans are eligible for education benefits if they: (1) served in the armed forces for at least 181 consecutive days; (2) have an honorable or a general discharge; (3) take their schooling within ten years of separation. Veterans' benefits range from \$270 per month for a single person to \$366 per month for a veteran with a wife and child. Veterans also receive \$22 per month for each additional dependent. Out of this amount, the veteran pays for his tuition and books.

Eligible veterans who have not yet used their education benefits must present for registration the following forms (copies only): (1) DD 214 (separation from service); (2) marriage license, if married; (3) birth certificates of dependent children.

Veterans who have used their education benefits in the past and are eligible for additional benefits must present their V.A. file number/claim number for education benefits. If this is not available, the following information is needed: (1) service number; (2) social security number; (3) birth date; (4) name and address of school last attended or applied for educational assistance; and (5) marriage license and birth certificates of dependent children, if status has changed since benefits were last used.

For further information on veterans' benefits or counseling services, call 577-4587.

Services for Students

Counseling — Each student plans his program of study with a counselor. Counselors are available throughout the year for consultation on academic matters.

Tutoring — Special tutoring in reading, writing, and math skills is available to all students and can be arranged during the day, evenings, and on weekends.

Orientation — Prior to the beginning of each quarter, new students participate in orientation sessions where the Weekend College Program is fully explained through lecture, group discussion, and film.

University Facilities — Weekend College students have full use of all Wayne State University facilities: libraries; the

Matthaei pool and game courts; reduced rates for the Hilberry and Bonstelle Theatres; and special art, musical, and lecture presentations.

Weekend College Program*

Social Science Year

Quarters 1, 2, and 3 12 credits of Social Science each quarter
 Quarter 4 12 credits of free electives

Humanities Year

Quarters 1, 2, and 3 12 credits of Humanities each quarter
 Quarter 4 12 credits of free electives

Science and Technology Year

Quarters 1, 2, and 3 12 credits of Science and Technology
 Quarter 4 12 credits of directed electives

Upper Division

Quarters 1, 2, and 3 8 credits of Theory and Method and
 4 credits of Senior Seminar each quarter

DIVISION OF UNIVERSITY PROGRAMS

Director: Robert M. Ericson, M.A.

Academic credit courses toward undergraduate and graduate degrees are offered in over a dozen off-campus learning centers in the metropolitan area by the various University schools and colleges through cooperative arrangements with the College of Lifelong Learning.

All such credit courses offered through the College of Lifelong Learning are open to qualified students. Those students who have been fully admitted to Wayne State University for a degree program of study (either graduate or undergraduate) and are in good standing will have the course credits and grades recorded on their transcripts. Those who have not been fully admitted to a degree program at Wayne State University will be registered as College of Lifelong Learning students; however, courses in the School of Business Administration numbered 0700 or above are open only to students admitted to a graduate program at Wayne State University.

The appropriate admission requirements and application procedures must be satisfied before credits will be applied toward a degree program. (See the registration agreement statement on the Program Request form.) Students are urged to process application and admission procedures with the University for completion of programs consistent with their goals and purposes.

Prior to registration, matriculated students should consult their advisers, and guest students should clear their registration plans with their home institution. Before submitting

*This is only one of many possible arrangements in which the Program requirements may be fulfilled.

registration forms, students should read carefully the information in the *Schedule of Classes* under the headings "Undergraduate Credit" and "Graduate Credit." Students are responsible for their registration action.

Counseling and Advising

The Office of Student Services at Southfield Center, 25610 West Eleven Mile Road, provides information and advice concerning University programs, admission procedures, and various academic regulations pertaining to student status. Students who do not have formal matriculated status in the University are especially urged to communicate with this office. The counseling service offers assistance at no cost to individuals concerned with education problems or degree objectives. For further information or an appointment, telephone the Southfield Center, 358-2104.

Registration

Registration for courses offered off-campus is separate from on-campus forms and procedures. Requests for course schedules and registration materials should be directed to the Office of Student Services, Southfield Center, Wayne State University, 25610 W. Eleven Mile Road, Southfield, Michigan 48034; telephone: 358-2104.

Students may register from the early registration period until the end of the official final registration for each quarter. (See "Academic Calendar," p. 4.) Registration is continuous; however, students who defer registration until after final registration are subject to a late registration fee. Completed registration forms for credit courses may be submitted through the mail or may be presented at the Southfield Center. Mail registrations must be received two weeks prior to the first scheduled class meeting.

Please do not expect a mailed acknowledgement of your registration; simply go to the classes selected at the time and place scheduled. An official record of your enrollment will be forwarded to you later in the quarter.

Fees

Fees for all classes offered through the College of Lifelong Learning for admitted or non-admitted students, graduate or undergraduate, are \$28 per credit hour. If a student registers for a course in Liberal Arts, Business Administration, etc., and pays the on-campus fee with that College, and then registers for a course offered through the College of Lifelong Learning, the additional tuition will be \$28 per credit hour. Students taking 13 through 16 credit hours either on campus, through the College of Lifelong Learning, or combined will pay no additional tuition beyond the 12-hour tuition fee. *All fees are subject to change at any time without notice.*

Students electing programs of less than five total credits are required to pay the full applicable fee when registering. Students are held responsible for payment of correct fees. The University will bill students for the proper amount owed if, following registration, an audit indicates necessary adjustments.

Payment of all fees by check or money order payable to Wayne State University must accompany registration materials. A student whose check is not honored must re-register, subject to all penalties. *Cash cannot be accepted.* Students may also use Master Charge cards to pay their tuition assessments. Students using this option and registering by mail must copy on a separate sheet of paper all the information indicated on their Master Charge card, sign the statement, and submit it with their registration materials.

A late payment charge of \$10 will be added to accounts not paid in full sixty days after the first day of classes. In addition, a "hold" will be placed on the records and further registration of any student with past-due indebtedness to the University.

SCHOOL OF BUSINESS ADMINISTRATION

Coordinator: John Maurer, Ph.D.

The faculty of the School of Business Administration offers credit courses in suburban facilities provided by the College of Lifelong Learning. More information concerning credit programs can be obtained by referring to the School of Business Administration section of this bulletin (see pp. 40-50), or by calling 577-4505 (undergraduate program) or 577-4510 (graduate program). Courses numbered at the 0100 to 0600 level are for undergraduate students, with the exception of the 0601-0609 sequence of courses. This sequence has been designed for non-business administration undergraduate majors and for those students holding a baccalaureate degree who wish to satisfy prerequisites to the M.B.A. program. Graduate courses are numbered at the 0700 level and are open only to students admitted to a graduate program at Wayne State University. All course work for students who have been admitted to the School of Business Administration must be taken in accordance with an approved *Plan of Work*.

COLLEGE OF EDUCATION

Coordinator: Frank X. Williams, M.A.

The College of Education offers credit courses and programs through the College of Lifelong Learning. Major emphasis is on graduate courses and degree programs which meet the in-service and other specialized needs of professional educators in the metropolitan area. Included are such programs as the Detroit Middle School Teachers Certification Program and the Internship in Educational Administration.

Recently offered off-campus advanced degree programs include: master's degree programs in: elementary education; in education with majors in instructional technology and in educational applications of humanistic psychology; and in educational leadership with a specialization in reading. Further recent programs are: an education specialist certificate program in educational administration, a C.B.E. field-based doctoral program for vocational administrators, and a doctoral program in pupil personnel services.

Interested persons should contact the Education Program Coordinator at 577-4616.

COLLEGE OF ENGINEERING

Coordinator: Charles Elliott, Ph.D.

The College of Engineering offers credit programs at the undergraduate and graduate levels, as well as several non-credit offerings, through the College of Lifelong Learning. Recent major program offerings have included: engineering technology, construction management, reliability and quality control, and mechanical engineering.

Complete master's degree programs in engineering management are available in the Warren and Dearborn areas, and a complete master's program in mechanical engineering is also available in Dearborn.

Recent examples of specialized courses developed and offered for both degree credit and continuing education programs have included: integrated circuits with automotive applications, materials processing and controls, materials in the automotive industry, and air pollution control.

Some examples of recent non-credit offerings have been: reliability in product design and testing, water pollution control, solar energy, and health systems management.

Interested persons should contact the Engineering Program Coordinator at 577-3812 to be placed on the regular mailing list for future offerings, or for further information.

DIVISION OF HEALTH AND PHYSICAL EDUCATION

Coordinator: Richard Swanson, Ph.D.

The Division of Health and Physical Education offers a variety of credit courses and programs through the College of Lifelong Learning at centers throughout the metropolitan Detroit area. For the most part, the individual courses offered may be taken by both undergraduate and graduate students. Individual courses are regularly offered in dance and dance education, health education, physical education, and recreation and park services.

Complete certification and degree programs are offered as follows:

Certification in the teaching of driver education and traffic safety — a twelve-credit program leading to state certification as a teacher of driver education — is regularly offered in Southfield and Warren. The program consists of three four-credit courses which must be taken consecutively. Program enrollees must possess a currently valid Michigan driver's license.

Special programs leading to the Master of Education degree in health education are being offered at the Birmingham Center for Continuing Education and at the Macomb County Intermediate School District Center in Mt. Clemens. The programs may be completed in a two-year calendar period and are open to teachers, nurses, therapists, and other health service professionals.

Detailed program and course information may be obtained from the Division of Health and Physical Education; telephone: 577-4249.

COLLEGE OF LIBERAL ARTS

Coordinator: Robert Erickson, M.A.

The College of Liberal Arts offers a full range of courses and programs through the College of Lifelong Learning. Major emphasis is on upper-division and graduate classes in extension, as well as special programs in criminal justice, Federal Metro College, and Community Center pre-matriculation courses.

All courses scheduled at many off-campus centers are staffed and approved by departmental chairpersons and all carry College of Liberal Arts credits and may be used to fulfill College requirements.

Department of Family and Consumer Resources

Coordinator: Anne Linn, M.A.

Three special sequences are offered by the Department of Family and Consumer Resources, College of Liberal Arts:

Dietetic Assistant Program — The law now requires persons working in an institutional food service setting to have formal training in food management. A program of certified work-study, approved by the American Dietetic Association (ADA) and offered by the College of Lifelong Learning through the Department of Family and Consumer Resources, not only meets the new legal requirements, but also provides the student with the qualifications for higher pay, advancement to a better position, and membership in the Hospital, Institution and Educational Food Service Society.

The short-term program, which can be completed in less than two years, involves six classes with four quarters of supervised work experience. Usually, one or two classes are taken in the evening each quarter. Work experience can be gained in the student's present place of employment if performed under the supervision of a registered dietician.

Classes include lectures, discussions, films, and field trips. Instructors are registered dietitians who are members of the ADA and are experienced in the field of institutional food service.

Child Care Program — A two-year program in child care is offered in cooperation with the Department of Family and Consumer Resources. Designed so that the student will be able to work with young children in any setting, the program also allows him or her to meet the licensing regulations of the State of Michigan for director of a day care center. The student gains experience in working with children and may complete the program by taking one to two courses a quarter.

The Child Care Program can serve as an entry to the University for students who would not otherwise pursue college training. Persons may enter the program if they have a high school diploma (or the equivalency) or if they have previously attended college. The Program is open-ended so that students may choose their own pace. Many students in the program go on to earn a Bachelor's Degree in Human Development and Relationships in the Department of Family

and Consumer Resources, or a degree in the College of Lifelong Learning.

Pre-Professional Program in Gerontology — This two-year program, offered in cooperation with the Institute of Gerontology (Wayne State University/The University of Michigan), is designed to prepare the student to work with senior citizens in a variety of situations including foster day care, recreation centers, and nursing homes. For information, telephone 577-3312.

COLLEGE OF NURSING

Coordinator: Dorothy Reilly, Ph.D.

Credit Offerings — The College of Nursing, in cooperation with the College of Lifelong Learning, offers courses leading to the Bachelor of Science and Master of Science degrees in nursing in a variety of locations throughout metropolitan Detroit and the state. All credit courses, undergraduate and graduate, offered through the College of Lifelong Learning, are open to qualified registered nurses. Students who have not been admitted to a degree program will be registered with "limited status." When students are admitted to a degree program, they may petition for acceptance of the course credit as part of their degree requirement.

For information concerning degree programs and admission requirements, contact the Office of Student Services, College of Nursing, at 577-4078 or 577-4084. For information concerning the nursing courses offered through the College of Lifelong Learning, contact the Office of Community Educational Services, College of Nursing, at 577-4100.

Non-Credit Offerings — The College of Nursing, through the College of Lifelong Learning, sponsors non-credit offerings (mini-courses, workshops, conferences) to meet the educational needs of nurse practitioners, particularly in the greater metropolitan Detroit area, and in the state of Michigan. Programs by the College are also co-sponsored with other universities, community, or professional groups. Certificates of attendance are granted to participants who attend an entire session. For information call the Office of Community Educational Services at 577-4100.

COLLEGE OF PHARMACY AND ALLIED HEALTH PROFESSIONS

Coordinator: Willis E. Moore, Ph.D.

Continuing Education in Pharmacy — A program designed to assist pharmacists, nurses, physicians, and allied health professionals in coping with contemporary developments in pharmacy is presented by the College of Lifelong Learning in cooperation with the College of Pharmacy and Allied Health Professions. The courses may often be taken for graduate credit with an adviser's approval, or for continuing education credit in order to maintain state licensing requirements. A certificate in Contemporary Topics in Pharmacy is presented to those who enroll and complete any course.

SCHOOL OF SOCIAL WORK

Coordinator: Alice Lamont, M.S.

The School of Social Work is a professional school which offers courses leading to the Bachelor of Social Work (B.S.W.) and Master of Social Work (M.S.W.) degrees. Both are full-time programs, although persons interested in social work often find it helps to take some courses part-time before applying for full-time study. The courses offered are open to both full-time and part-time students and may be taken for credit or without credit. Admission to the University is required to receive credit.

New students may apply for admission at the University Admissions Office, 116 Administrative Services Building, 100 Antoinette; telephone 577-3569. Persons may register for social work classes in advance by mail or at the School of Social Work. For information, telephone 577-4427.

TRAVEL/STUDY PROGRAMS

All Wayne State University travel/study programs are offered through the College of Lifelong Learning for the sponsoring colleges and schools. Most occur in the summer and have included six to eight week stays in one place as well as short stays in many countries. Art, sociology, archaeology, geography, anthropology are some of the areas of study which have been available in these programs, which combine travel to another country with academic pursuits.

DIVISION OF LIFELONG LEARNING PROGRAMS

Director: William Hilton, Ph.D.

Credit Courses

A number of credit courses in areas not already described are available in the areas of Humanistic and Social Studies and of Vocational and Technical Studies. These offerings are described under Other Academic Courses on page 453.

Independent Study

Each quarter, students can pursue a special area of interest through independent study. Students attend only one class meeting, and the remainder of the time is spent in small group discussions and independent study; faculty assistance is available for guiding research and project organization. Courses in independent theme studies include Humanistic and Social Studies 3901, 3902, 3903, 3904, and 3908. They are described on page 453.

University Courses in Adult Education (UCAE)

The University of Michigan, through its Extension Service, and Wayne State University, through the College of Lifelong

Learning, jointly offer *non-credit* courses for adults at locations in Detroit, Ann Arbor, Dearborn, Southfield, and Birmingham. Most UCAE courses are designed for personal enjoyment and enrichment. UCAE aims to provide a forum for the adult community to engage the issues of the day as well as to gather insights from traditional disciplines. Most of its instructors come from the institutions sponsoring the courses. For information, telephone 577-4665.

Other Non-Credit Courses — Courses designed to help persons advance in their present careers or to prepare for new ones are offered evenings and Saturdays in Detroit and in suburban locations. Certificate programs following a sequence of courses are available in such areas as nursing-home administration, real estate, and small business management. Most of the courses are taught by working professionals in the various fields.

DIVISION OF CONFERENCES AND INSTITUTES

Director: John Fraser, B.A.

The Conferences and Institutes Division serves community organizations, professional associations, students and faculty through special short-term learning events: conferences, workshops, seminars, and formal meetings. These events can be scheduled on campus in the McGregor Memorial Conference Center or in any off-campus location which meets the needs of the group.

The McGregor Memorial Conference Center was designed by the internationally known architect, Minoru Yamasaki as a fitting environment for a partnership of learning and action. There are eleven conference rooms, an exhibit area, a spacious Alumni Lounge, and a large modern auditorium.

Whether the event is held on or off-campus, the Conferences and Institutes staff has strong capability in subject research, program design and coordination, financial administration, design and writing of program materials and presentations, identification of faculty resource people, and the conducting of various types of programs. The staff can supply professional help to any organization requiring it, as well as a full range of audio-visual services. For information, telephone 577-2400.

DIVISION OF COMMUNITY SERVICES

Director: Hartford Smith, Jr., M.S.W.

Assistant Director: Elza Adderley, M.S.

The Division of Community Services is designed to strengthen the community service programs of the College of Lifelong Learning and other schools and colleges of Wayne State University. Through a variety of methods and approaches, the Division attempts to assist the people of the metropolitan area to find meaningful solutions to outstanding community problems such as unequal educational opportunity, poverty, unemployment, lack of youth opportunities and poor upward-mobility patterns. In addition, this Division works closely

with the public and private sector to assess continuing educational needs of agency staff and clientele primarily involved in community service projects and community problem solving. Its activities include college credit programs, University Career Development Institute, non-credit career and educational development programs for adults with less than a high school education, the Robert Tindal Consumer Education Institute, and a training program for American Indians.

Community youth projects to develop educational, employment and social skills are another integral part of the continuing services for the community, as are programs designed to improve the quality of life of senior citizens. The elementary school child is the subject of an ongoing developmental program which includes educational, cultural and recreational activities.

The Division also sponsors the Federal Metro College Program for federal, state and municipal public service employees. Providing college credit courses at work-site locations at times convenient for working persons, the program assists such employees in gaining new skills and upward mobility.

DIVISION OF INSTRUCTIONAL SERVICES

Director: Alvin Edelson, Ph.D.

The Division of Instructional Services has as its primary goal the improvement of instruction through non-traditional methods for the College of Lifelong Learning. To that end, this Division assists faculty and academic staff in the preparation of instructional programs employing the processes and products of educational technology. These services include, but are not limited to, the following:

1. The design and production of televised courses for Lifelong Learning programs as well as for other colleges and schools in the university. The instructional services staff involvement includes determination of course objectives, coordination of production, preparation of ancillary material, and instructional development for participants.
2. Faculty development through consultation on individual problems.
3. Preparation and presentation of instructional workshops to assist faculty members in course development.
4. Evaluation of the effectiveness of instructional programs.
5. Distribution and promotion of televised courses and other technology-based materials. Courses are used locally, nationally and internationally.

COURSES OF INSTRUCTION¹

Weekend College Program

General Science and Technology (GST)

2000. Technology and Decision-Making — Communication Skills. Cr. 4.

See description for GST 2001. Team-teaching format in workshop. Subject materials will be reinforced by continuing special attention to communication skills in fulfillment of degree requirement.

2001. Technology and Decision-Making. Cr. 4.

This workshop course will discuss and apply modern decision-making techniques such as cost/benefit analysis, modeling, and linear programming to specific problems that confront our society.

2002. Social Values and Technological Change. Cr. 4.

This television course will explore the social and value implications of technological change. Guests from around the United States and six other countries provide a variety of outlooks. Sets of programs treat: 1. History of Technosocial Change; 2. Impacts of Technology; 3. International Aspects; 4. Modeling; 5. The Arts and Technology; 6. Theories and Perspectives.

2003. Conference on Values, Technology, and Society. Cr. 4.

The conference course, held on two weekends (or the equivalent) during the quarter, is thematic. Individual topics are presented at the beginning of the quarter.

2100. Life and the Environment — Communication Skills. Cr. 4.

See description for GST 2101. Team-teaching format in workshops. Subject materials will be reinforced by continuing special attention to communication skills in fulfillment of degree requirement.

2101. Life and the Environment. Cr. 4.

The critical health issues relevant to today's urban dwellers form the basis of discussion for this workshop course. It will examine the ecological and ethical factors associated with health in an urban society.

2102. Changing Life on Earth. Cr. 4.

Television course: What is the basic structure of life? How did the plant and animal kingdom evolve? How has man affected his environment? The interplay of biological and energy systems from the micro world of the cell to the macro universe of mankind is the major theme of the series.

2103. Conference on Biomedical Issues. Cr. 4.

The conference course, held two weekends (or the equivalent) during the quarter, is thematic. Individual topics are presented at the beginning of the quarter.

2200. Current Issues on Energy Policy — Communication Skills. Cr. 4.

See description for GST 2201. Team-teaching format in workshops. Subject materials will be reinforced by continuing special attention to communication skills in fulfillment of degree requirement.

2201. Current Issues on Energy Policy. Cr. 4.

In this workshop the following topics are among those that will be examined: the role of the automobile in transportation systems; what primary energy source the United States should rely on; future energy sources; food and agriculture; governmental policy concerning energy.

2202. Energy Needs and Modern Society. Cr. 4.

Television course: the total energy needs of a modern society, including food, transportation, housing, industry, and convenience products are studied to determine the outlook for the future against a backdrop of the energy systems already created.

2203. Conference on Energy, Technology, and Society. Cr. 4.

The conference course, held two weekends (or the equivalent) during the quarter, is thematic. Individual topics are presented at the beginning of the quarter.

3004. Theory and Method in Science and Technology. Cr. 4-8.

The seminar and directed study courses focus on the articulation of general principles which have been instrumental in shaping the perspectives of the Science and Technology disciplines. Students will be familiarized with the criteria which the various physical sciences use to test the relationships between general principles and specific phenomena.

3103. Interdisciplinary Conference. Cr. 4.

Weekend interdisciplinary conferences dealing with topics involving the interrelations, interactions, similarities, and dissimilarities between the various academic divisions and their methodologies are conducted by a team of faculty from Humanities, Social Sciences, and Science and Technology.

General Social Science (GSS)

2000. Selected Perspectives on Ethnicity — Communication Skills. Cr. 4.

See description for GSS 2001. Team-teaching format in workshops. Subject material will be reinforced by continuing special attention to communication skills in fulfillment of degree requirement.

2001. Selected Perspectives on Ethnicity. Cr. 4.

From the viewpoints of various social science disciplines, people and peoples are defined and studied. Discussions in the workshop will focus on such topics as the cultures, interactions, life patterns, personality development, and the institutions of various groups of people.

2002. Culture, Community, and Identity. Cr. 4.

In this television course the concepts of culture, community, and identity are examined as reflective of social life in North America and as analytic tools which are used by social scientists to broaden our understanding.

2003. Conference on Contemporary Issues in Ethnic Studies. Cr. 4.

Focusing on institutions, neighborhoods, and ethnic groups, the two weekend conferences which comprise the course will analyze selected social problems in the city, emphasizing the ethnic component.

2100. Problems in Work and Labor — Communication Skills. Cr. 4.

See description for GSS 2101. Team-teaching format in workshops. Subject materials will be reinforced by continuing special attention to communication skills in fulfillment of degree requirements.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

2101. Problems in Work and Labor. Cr. 4.

Workshop course emphasizing particular problems related to the nature of work and jobs.

2102. Introduction to the World of Work. Cr. 4.

Using a multi-disciplinary approach, this television course defines and examines the problems of work and the lives of working people in modern society.

2103. Conference on Work and Labor Today. Cr. 4.

The conferences which comprise this course will analyze specific economic and social issues which relate to individuals and institutions in modern American society.

2200. Perspectives on Conflict — Communication Skills. Cr. 4.

See description for GSS 2201. Team-teaching format in workshops. Subject materials will be reinforced by continuing special attention to communication skills in fulfillment of degree requirement.

2201. Perspectives on Conflict. Cr. 4.

The workshop course looks at the phenomena of human conflict, emphasizing particular perspectives appropriate to the focus and types of conflict chosen for investigation.

2202. The Nature of Human Conflict. Cr. 4.

This television course delineates the pervasiveness of conflict in human experience, using a multi-disciplinary perspective to demonstrate both the constructive and destructive effects of conflict.

2203. Conference on Analysis of Conflicts and Conflict Issues in the Modern World. Cr. 4.

The conferences which comprise this course will focus on specific types of human conflict or conflict events.

3004. Theory and Method in the Social Sciences. Cr. 4-8.

The seminar and directed study courses focus on the articulation of general principles which have been instrumental in shaping the perspectives of the social science disciplines. Students will be familiarized with the criteria which the various social sciences use to test the relationships between general principles and specific phenomena.

3103. Interdisciplinary Conference. Cr. 4.

Weekend interdisciplinary conferences dealing with topics involving the interrelations, interactions, similarities, and dissimilarities between the various academic divisions and their methodologies are conducted by a team of faculty from Humanities, Social Sciences, and Science and Technology.

General Urban Humanities (GUH)

1501. Communication Skills. Cr. 4.

This workshop is designed to help students refine their speaking, writing, reading, notetaking, and study skills with individualized instruction suited to the students' needs in their other course work and in their jobs.

2000. Culture: Folk, Mass, and Classical Patterns — Communication Skills. Cr. 4.

See description for GUH 2001. Team-teaching format in workshops. Subject materials will be reinforced by continuing special attention to communication skills in fulfillment of degree requirement.

2001. Culture: Folk, Mass, and Classical Patterns. Cr. 4.

This workshop will focus on the question: What is culture? It will attempt to clarify a number of ways in which culture can be viewed, including culture in the elite sense as a collection of masterpieces and culture as the total context in which life occurs.

2002. Quality of Life. Cr. 4.

In order to explore the relationships between cultural expression in an urban setting and the quality of life, the television course will examine the cultural institutions of the Detroit area.

2003. Conference on Folk, Mass, and Classical Culture. Cr. 4.

The conferences, held two weekends (or the equivalent) during the quarter, are thematic, and individual topics are presented at the beginning of the quarter.

2100. Cultural Identity and the American Experience — Communication Skills. Cr. 4.

See description for GUH 2101. Team-teaching format in workshop. Subject materials will be reinforced by continuing special attention to communication skills in fulfillment of degree requirement.

2101. Cultural Identity and the American Experience. Cr. 4.

Origins, ideals, symbols, and substance of American culture and character. Distinguishing features of American thought and culture and reasons for their uniqueness. Workshop course.

2102. An American Mosaic. Cr. 4.

The major migrations which have resulted in the hybrid culture of the United States: East to West, South to North, from the farm to the city; theories of Indian and European migrations and forced migration of blacks. Television course.

2103. Conference on Visions of America. Cr. 4.

American society and culture as people living in other parts of the world past and present, have seen it.

2200. Aesthetic Experience — Communication Skills. Cr. 4.

See description for GUH 2201. Team-teaching format in workshop. Subject materials will be reinforced by continuing special attention to communication skills in fulfillment of degree requirement.

2201. Aesthetic Experience. Cr. 4.

Each workshop will concentrate particularly on one genre or art form (novels, poetry, music, visual art, drama) but may bring in others which serve to enhance or highlight certain aspects of the principal art form being examined.

2202. The Many Lives of Dr. Faust. Cr. 4.

Television course dramatizing "Dr. Faust" and how that figure developed over the centuries into a symbol of Western man and his restless pursuit of knowledge. Historical, mythological, artistic, and ideological dimensions of the Faust legend from the sixteenth through the twentieth century.

2203. Conference on the Arts of the Imagination. Cr. 4.

Examination of the creations of the imagination and the human need to create. Conference course.

3004. Theory and Method in the Humanities. Cr. 4-8.

Seminar and directed study courses focusing on the articulation of general principles which have been instrumental in shaping the perspectives of the humanities disciplines. Criteria which the various humanities disciplines use to test the relationships between general principles and specific phenomena.

3103. Interdisciplinary Conference. Cr. 4.

Weekend interdisciplinary conferences dealing with topics involving the interrelations, interactions, similarities, and dissimilarities between the various academic divisions and their methodologies; conducted by a team of faculty from Humanities, Social Science, and Science and Technology.

Advanced General Studies (AGS)

4105. Field Studies: Practicum. Cr. 2-4 (Max. 12).

Study opportunities in a non-traditional classroom setting. Students learn by experience under the supervision of a professional. Practice is integrated with appropriate research and methods, and evaluation is based on evidence of growth and mastery of specified skills. The ratio of clock hours to credits is 15 to 1.

4204. Directed Study: Social Science. Cr. 4 (Max. 12).

Directed study supervised by a faculty member. Appropriate if no courses of instruction are available covering desired topic area.

4404. Directed Study: Urban Humanities. Cr. 4 (Max. 12).

Directed study supervised by a faculty member. Appropriate if no courses of instruction are available covering desired topic area.

4604. Directed Study: Science and Technology. Cr. 4 (Max. 12).

Directed study supervised by a faculty member. Appropriate if no courses of instruction are available covering desired topic area.

4804. Directed Study: General/Interdisciplinary. Cr. 4 (Max. 12).

Directed study supervised by a faculty member. Appropriate if no courses of instruction are available covering desired topic area.

4903. Senior Conference. Cr. 2-4.

Conference considers the areas from which topics for senior essay/projects may be chosen. Designed to enable the student to pursue and appreciate specific topics within the context of broad, interdisciplinary education.

4976. Senior Seminar. Cr. 4.

A communications workshop to prepare the student to undertake the significant, comprehensive essay/project which is a graduation requirement of the program.

4986. Senior Seminar. Cr. 4.

Preparation and execution of the senior essay/project under direction of a faculty adviser culminating in an oral presentation to a faculty panel.

4996. Senior Seminar. Cr. 4.

Revision and further development of the senior essay/project under direction of a faculty adviser culminating in submission of the essay/project for acceptance by a faculty panel.

Other Academic Courses

Humanistic and Social Studies (HSS)

2241. Women's Studies. Cr. 2-4 (Max. 16).

Prereq: consent of instructor. Issues facing the contemporary American woman, such as search into identity, sexuality, career goals, the family, will be explored through speakers, mini labs and group interaction.

2560. Aging and Society. Cr. 4.

Prereq: consent of instructor. Introduction to a developmental view of adulthood and old age. Discussion of economic, social, political and ethical issues involved in accommodating increasing numbers of aged persons in our society. Impact of local, state, and federal agencies.

3901. Independent Theme — Area Studies: American. Cr. 4 (Max. 12).

Prereq: junior standing or consent of instructor. Interdisciplinary study of a major theme of American culture.

3902. Independent Theme — Area Studies: Britain and the Commonwealth. Cr. 4 (Max. 12).

Prereq: junior standing or consent of instructor. Interdisciplinary study of major theme of British culture.

3903. Independent Theme — Area Studies: European. Cr. 4 (Max. 12).

Prereq: junior standing or consent of instructor. Interdisciplinary study of a major theme of European culture.

3904. Independent Theme — Area Studies: Slavic and Eastern European. Cr. 4 (Max. 12).

Prereq: junior standing or consent of instructor. Interdisciplinary study of a major theme of Slavic or Eastern European culture; such as Leningrad, Russian Romanticism, Napoleon in Russia.

3908. Independent Theme — Area Studies: Latin American. Cr. 4 (Max. 12).

Prereq: junior standing or consent of instructor. Interdisciplinary study of a major theme of Latin American culture.

Vocational and Technical Studies (VTS)

2551. Introduction to Careers in the Criminal Justice Field. Cr. 4.

Prereq: HSS 1502 or basic college English or equiv. Orientation to fields of service in criminal justice systems and related institutions, survey of manpower needs, prerequisites and projections through 1980.

2552. Juvenile Delinquency, the Juvenile Court and the Law. Cr. 4.

Prereq: basic college English and introduction to social science or equiv.; consent of counselor. Combined lecture and field experience in juvenile court setting regarding major problems, issues and prerequisites of sound juvenile justice process for court and agency-related personnel and others interested in future careers in this field.

2853. Exploration of Role and Methods of Counseling in the Juvenile Justice System. Cr. 6.

Prereq: basic college English and completion of introduction to social sciences. A field study practicum. Counseling intervention with pre-delinquent and delinquent youth; and social-legal ramifications of counseling role in juvenile justice system.

2870. Paraprofessional Practicum. Cr. 2-4 (Max. 16).

Prereq: one year's full-time experience as a paraprofessional; concurrent enrollment in a college-level course. Students work thirty hours per week in a public school, business, industry or social service agency under professional guidance.

3551. Interaction and Communication in the Court System. Cr. 2.
Interpersonal relationships, the individual in the court system, labor relations and court grievances procedure; and communication, perception, and feedback in the court system.

3552. Legal Rights and Responsibilities of the Average Citizen. Cr. 2.
Survey of increasing volume of law affecting average citizens.

3553. The Judicial System. Cr. 2.
General survey of theory, assumption and structure of American judicial system with special emphasis on Michigan.

3554. Administration Management for Personnel in Law Enforcement Agencies. Cr. 2.
Prereq: consent of program director or coordinator. Short course in management principles and techniques, relating to functions of staff in law enforcement agencies in southeastern Michigan.

3571. Psychology of Living Successfully. Cr. 3.
Handling of troublesome mental states; fear of being misunderstood, overcoming undesirable habits; stage fright; fear of failure; business pressure; signs of mental stress and prevention.

3754. Social Planning Approaches to the Problem of Crime and Delinquency. Cr. 2.
Prereq: introductory social sciences and basic college English. The extent of crime and delinquency and the general problem of mobilizing systematic response; analysis of needed policy changes and possible "community systems."

4355. Advanced Court Administration. Cr. 12.
Prereq: experience in court administration. Budget planning and financial control, management information, systems, personnel systems and functions, case flow management, jury utilization, and record administration.

4551. Procedure and Evidence. Cr. 2.
Prereq: consent of program director or coordinator. Updating laws of procedure and evidence as these affect contemporary criminal justice systems in Michigan and the United States.

4552. Fiscal Administration for Court Employees. Cr. 2.
Working knowledge of court and budgeting procedures, accounting principles, cost, fiscal forms and procedures, and the auditing and reporting processes in the court.

4741. Rehabilitative Aspects of Nursing. Cr. 4-6.
Survey of the rehabilitative aspects of nursing with emphasis on the physically handicapped individual.

5551. Management Practices and Techniques in the Court System. Cr. 2.
Prereq: VTS 4552. Traditional and popular principles of organization as they apply to the court system methods, financial management personnel, community-related and specific job function.

5552. Analysis of Individual Court Structures within Michigan Court Systems. Cr. 2.
Prereq: consent of program director or coordinator. A series of weekly discussions on individual courts — circuit, recorder's, probate — to focus on problems peculiar to each court.

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FACULTY

Dean: Robert E. Hubbard
Associate Dean: Allen A. Hyman
Assistant Dean for Development: Raymond M. Genick
Director of Administration Services: Ralph R. Thiel
Director of Information: Leontine K. Cadieux
Director of Instructional Services: Alvin Edelson
Director of Student Services: Edward Cieslak
Director, Division of Community Services: Hartford Smith, Jr.
Director, Division of Conferences and Institutes: John Fraser
Director, Division of University Programs:
Robert M. Erickson
Director, Division of College of Lifelong Learning Programs:
William Hilton
Director, Division of Weekend College Program:
Nola H. Tutag
Assistant Directors: Clifford Maier, Faculty/Instruction
Paul Fiedler, Student Services
Assistant to the Director: David W. Hartman

PROFESSORS

Jerry C. Bails, H. Merrill Jackson, Clifford Maier, Robert Thomas, Rolland Wright

ASSOCIATE PROFESSORS

Richard Bohan, David Bowen, John Juskevics, Carlton Maley, Bernard Ortiz de Montellano, Seymour Riklin, Nola Tutag, Thomas F. Waters, Jr., James Woodyard

ASSISTANT PROFESSORS

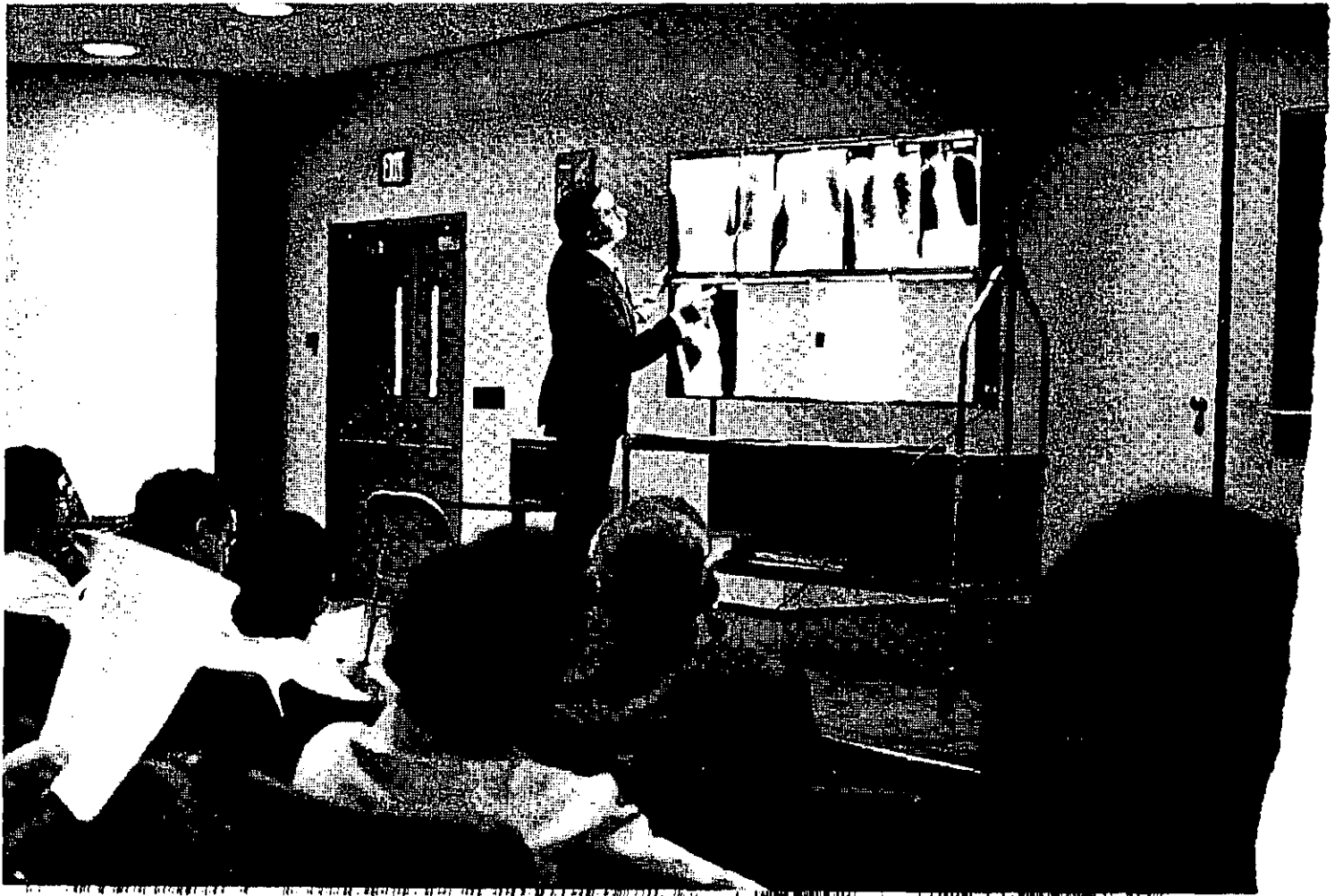
Sandor Agocs, Chauth Ram Arora, Marrietta Baba, Marvin Bobes, Eric Bockstael, Karen N. Clark, Charles Davis, Pamela G. DeWeese, Edwin E. Felton, Jr., Eric D. Fenster, Mary Lee Field, Andre W. Furtado, Judith L. Gardner, Jonathan George, David W. Hartman, Arnold Herard, Gordon Hinzmann, Gloria L. House, William M. Jordan, Jr., George J. Klein, Julie Klein, Theodore A. Kotila, David H. Levey, Laurier Dibb Mailloux, Guerin Montilus, Sanford M. Orlow, Hope E. Palmer, Patrick F. Petit, Helena M. Pycior, Richard Ruspa, Carl K. Rollyson, Jr., Roslyn Schindler, Keith S. Sheppard, Norma Shifrin, Kamal Shukla, Hugh M. Stillely, Saul Wineman

INSTRUCTORS

Zigmond Boyter, Linda A. Clemons, Alex Cushnier, Jr., Michael A. Daher, David Dull, Krista L. English, Joan B. Fiscella, Sylvia Forte, Peter J. Friedlander, Martin Glaberman, David L. Jacobs, Fred Kellermeier, Kristine Lessins, Bruce Levine, Margaret Lindberg, Ellen Liss, Penelope Majeske, Beatrice M. Manz, Lorraine Roebach Meier, James Michels, Mary M. Robischon, Francis R. Shor

College of Lifelong Learning Directory

Admissions, Counseling, Registration	358-2104
Birmingham Center for Continuing Education	642-2661
Business Administration Courses	577-4502
Child Care, Gerontology, and Dietetic Assistant Courses	577-3312
Community Services	577-4695
Conferences and Institutes	577-2406
Dean	577-4675
Director of Information	577-4680
Driver Education Courses	577-4249
East Side Center	577-4701
Education Courses	577-4616
Engineering Courses	577-3812
Federal Metro College Program	577-0855
Health and Physical Education Courses	577-4249
Instructional Services	577-4592
Liberal Arts Courses	358-2104
McGregor Memorial Conference Center	577-2400
Nursing Courses (Graduate)	577-4100
Social Work Courses	577-4427
Southfield Center	358-2104
University Courses in Adult Education (WSU/U of M)	577-4665
Weekend College Program	577-0832



School of Medicine

DEAN: ROBERT D. COVE

Academic Calendar 1977-78

Foreword

YEAR I

Registration	Tuesday, September 6, 1977 - Friday, September 9
Orientation	Friday, September 9
Classes begin	Monday, September 12
Thanksgiving recess	Thursday and Friday, November 24 - 25
Christmas recess	Friday, December 23 - Monday, January 2, 1978
Spring recess	Saturday, March 18 - Monday, March 28
Memorial Day recess	Monday, May 29
Independent study and review	To be assigned
Final comprehensive exam	Thursday and Friday, June 15 - 16
Classes end	Friday, June 2

YEAR II

Registration	Monday, August 29, 1977 - Friday, September 2
Classes begin	Tuesday, September 6
Thanksgiving recess	Thursday and Friday, November 24 - 25
Christmas recess	Friday, December 23 - Monday, January 2, 1978
Spring recess	Saturday, March 18 - Sunday, March 26
Memorial Day recess	Monday, May 29
Independent study and review	To be assigned
Final comprehensive exam	Wednesday, May 31 - Friday, June 2
Classes end	Friday, May 19

YEAR III

Registration	Tuesday, July 5, 1977 - Friday, July 8
Classes begin	Monday, July 11
Rotation I	July 11, 1977 - September 30
Rotation II	October 3 - December 23
Rotation III	January 2, 1978 - March 24
Rotation IV	March 27 - June 16
Labor Day recess	Monday, September 5
Thanksgiving recess	Thursday and Friday, November 24 - 25
Christmas recess	Friday, December 23 - Monday, January 2, 1978
Memorial Day recess	Monday, May 29
P.M.P. Examination	To be assigned
Classes end	Friday, June 16

YEAR IV

Registration	Monday, June 27, 1977 - Friday, July 1
Classes begin	Tuesday, July 5
Period I	July 5 - July 31
Period II	August 1 - August 31
Period III	September 1 - September 30
Period IV	October 1 - October 31
Period V	November 1 - November 30
Period VI	December 1 - December 31
Period VII	January 2, 1978 - January 31
Period VIII	February 1 - February 28
Period IX	March 1 - March 31
Period X	April 1 - April 30
Period XI	May 1 - May 31
Labor Day recess	Monday, September 5
Internship Matching Day	To be assigned
Commencement	Sunday, June 4

The School of Medicine of Wayne State University began operating and granting degrees as a college of medicine in 1868. It was then called The Detroit Medical College. At that time there were two hospitals in Detroit: St. Mary's, organized in 1845, and Harper Hospital, which opened in 1863. Harper continues as a leading hospital in Detroit, and is affiliated with the Medical School.

The Detroit Medical College was conceived and founded by Dr. Theodore A. McGraw, a native of Detroit who returned to the city in 1865 after serving for two years in the United States Army as a contract surgeon. During his short absence Detroit had become an important port on the Great Lakes and a growing industrial center, with a population of 53,000.

In 1875 the Alumni Association was founded. Dr. McGraw became president, and the secretary was Dr. Leartus Connor, who was also active in the first organization of the Association of American Medical Colleges in 1876. Through the years the Alumni Association has continued its active interest in the School of Medicine and has its own scholarship and loan program.

In 1879 another college, the Michigan College of Medicine, opened in Detroit. A little later the two colleges united to become The Detroit College of Medicine. In 1919 the surviving Detroit College of Medicine and Surgery, as it was known then, became an official part of the Detroit Board of Education and thus an important unit in the rapidly developing Colleges of the City of Detroit. The year 1933 saw the name of the Colleges of the City of Detroit changed to Wayne University in honor of the American Revolutionary War hero, General Anthony Wayne, to whom the British surrendered this region in 1796. It was in 1956 that Wayne University became a State institution.

The School of Medicine has entered its second century with evidence of unparalleled growth and creation of a totally new \$56 million campus in the Detroit Medical Center. With the opening of the Gordon H. Scott Hall of Basic Medical Sciences in 1971, the size of the entering class increased to 208 students. This year, for the third consecutive year, programmed peak enrollment of 256 makes the Wayne State University School of Medicine one of the largest medical schools in the country.

The \$48 million, nine-story University Clinics is now under construction south of Scott Hall, along with the new \$69 million Detroit General Hospital. The two separate but contiguous buildings, which will serve as major teaching and clinical centers, are scheduled for completion in 1978.

ACADEMIC PROGRAMS

MEDICAL STUDENT CURRICULUM

The primary objective of the four-year curriculum is to teach the fundamentals of medicine so as to graduate excellent physicians. The goals for the undergraduate program at the Wayne State University School of Medicine do not include training designed to encompass all of the medical specialties. Instead, the medical faculty attempts to provide medical students with thorough understanding of the fundamentals of medicine, and to engender the concept that undergraduate medicine is preparation for a continuing graduate effort.

The recently revised undergraduate program in medicine consists of a core curriculum in cell biology, normal and abnormal organ system development, structure and function, an early correlation with clinical medicine, a coordinated clinical experience, expanded elective studies, and opportunity for early graduation.

Clinical correlation relates the basic sciences to patient care. The social and behavioral sciences are related to individual and community health problems with particular emphasis on preventive medicine and family care.

The first year includes anatomy, biochemistry, physiology, clinical conferences and behavioral sciences. Students spend one-half day a week in family and community health care. In this program students work with family physicians to gain an understanding of the interrelationship of social, economic and physical factors in health and illness.

Second year courses include pharmacology, pathology, immunology, microbiology, special topics in biochemistry and psychiatry. As in the first year, the clinical staff assists in the teaching. Clinical Medicine, bridging the basic sciences and the clinical years, provides an intensive course in interviewing techniques, medical histories and physical examinations. The individual attention given the student is made possible by the extensive utilization of a large clinical faculty and an abundance of inpatients in the affiliated hospitals.

The third year of the curriculum consists of medical sciences, including internal medicine, neurology, otolaryngology and ophthalmology; surgical sciences, including general surgery, neurosurgery, urology, otolaryngology, and orthopedics; and maternal and child health consisting of obstetrics, gynecology, pediatrics, psychiatry, and community and family medicine.

The fourth year offers a broad program of structured electives. Individual students select their own program with the approval of their adviser and the Year IV Committee.

COOPERATIVE ELECTIVES EXCHANGE PROGRAM

The Deans of the four Michigan medical schools, acting as the Michigan Medical Schools Liaison Committee, have signed cooperative agreements allowing students full credit for courses taken as electives at any one of the participating medical schools: Wayne State University, University of Michigan, Michigan State University, and Michigan State University College of Osteopathic Medicine. The Deans intended the program "to make the best use of one another's resources to the greater advantage of the student and the Michigan community. By allowing medical students full academic credit for elective courses taken at any one of our respective medical schools, our students will be able to share productively in the learning and training opportunities of the entire State."

Under the Course Exchange Program the student continues to enroll and matriculate in the parent medical school. After obtaining approval to elect a course at a host school, the student pays only for living expenses while away from the parent institution.

Additional information can be obtained from Mrs. Sandra Driscoll, Recorder, Office of the Registrar.

GRADUATE PROGRAMS

Director: Charles D. Jeffries, Ph.D.

Advanced study beyond the baccalaureate degree is available in the School of Medicine. The primary purpose is to provide an opportunity for graduate training in preparation for careers in teaching or research in the medical and health-related sciences. The graduate programs offered emphasize the latest, as well as the classical, theoretical and practical developments in the medical sciences. The faculty of the School of Medicine serves also on the graduate faculty to assure high quality instruction.

The graduate student enters a community of scholars where he is expected to become acquainted with the development of his main area of study and its relationship to other pursuits. He is asked to direct his mind toward self-development, to acquire useful perspectives on the meaning and limitations of exact science, and to maintain a balance between practicality and abstract intellectual activity. He is expected to draw from and add to the wealth of accumulated knowledge in his discipline. Each graduate student works closely with a faculty adviser who helps plan his course schedules and his research program.

MASTER OF SCIENCE

Programs leading to the Master of Science degree in the basic medical sciences and in several related clinical fields are offered under the jurisdiction of the School of Medicine. Majors are available in the following areas: anatomy, audiology, biochemistry, immunology and microbiology, occupa-

tional and environmental health, pathology, pharmacology, physiology, psychiatry, and radiology. Graduate courses available in these disciplines are listed by department in the following pages. Forty-five credits are required for the master's degree in all fields except occupational and environmental health, which requires forty-eight. General requirements for the Master of Science degree are listed in the Graduate Division section of this bulletin.

DOCTOR OF PHILOSOPHY

Programs leading to the Doctor of Philosophy degree in the basic medical sciences are under the jurisdiction of the Graduate Division of the University. Majors are available in the following areas: anatomy, biochemistry, immunology and microbiology, pharmacology, and physiology. Graduate courses available in these disciplines are listed by departments in the following pages. General requirements for the Doctor of Philosophy degree are stated in the Graduate Division section of this bulletin. Supplementary departmental requirements are given in separate brochures available from the individual departments.

COMBINED DOCTOR OF MEDICINE— DOCTOR OF PHILOSOPHY DEGREES

Purpose

The combined M.D.-Ph.D. program is designed to provide exceptionally talented medical students an opportunity to acquire knowledge and expertise in research in one of the basic medical sciences or other related disciplines. Such a program will prepare the student to assume investigative leadership in medical schools and in institutes for medical research. The usual medical curriculum seldom permits the medical student with an interest in academic medicine to acquire the basic information and training necessary for a competent research investigator. Such training should also increase his effectiveness as a teacher in a medical school. By combining and interrelating the programs, making graduate courses available during a student's medical education, the foregoing objectives can be accomplished more effectively and in a shorter time than is possible by two separate degree programs. The programs are reasonably flexible so that they can be adapted to best suit the student's discipline and needs.

Approved Programs

The combined M.D.-Ph.D. degree program is available in five basic medical science departments: anatomy, biochemistry, immunology and microbiology, pharmacology, and physiology. Special arrangements also may be made for interdisciplinary studies between the School of Medicine and disciplines in other colleges.

Degree Requirements

The requirements for the combined M.D.-Ph.D. degrees conform with those established by the School of Medicine, the

Division of Graduate Studies, and the individual departments involved. The applicant should have the baccalaureate degree.

A student who has shown outstanding academic excellence may be considered for the combined degree program when he has been admitted to the School of Medicine and has satisfied the requirements for admission into the Graduate Division. The latter are stated in detail in the Graduate Division section of this bulletin. The student should apply for admission to the program during his first year in Medical School but usually no later than the end of his second year. Admission to the combined M.D.-Ph.D. program *must* be approved by: the appropriate department of the Medical School; and the Deans of the School of Medicine and of the Graduate Division.

The applicant must complete not less than forty-five quarter credits in acceptable graduate level courses in his major (thirty credits) and minor-cognate areas and an acceptable research dissertation (an additional forty-five credits). Up to forty-five credits may be transferred to his graduate program from his medical school course work, or from previous graduate studies, but *not* both. This transfer of credit is subject to approval by the department concerned and by the Graduate Division. The applicant must maintain a minimum B average in all graduate course work and a standing in the upper one-third of his medical class.

An advisory committee, appointed from members of the Graduate faculty of the School of Medicine by the Deputy Dean for Academic Affairs and the Graduate Officer of the School of Medicine, monitors the combined degree programs, sets standards, and adjudicates any conflicts which may arise.

Typical Programs

Considerable flexibility is possible in the combined degree programs regarding the sequence of scheduling graduate and medical course work. For example, the applicant may start with the first two years of medical school, then complete two or three years of full-time graduate work, including his dissertation research, and finally complete his medical curriculum. A number of alternative sequences may be arranged. In any sequence, however, the distinctive requirements for each degree are clearly preserved. An average of six years, three years in the medical school and three years of graduate work, including summers, is usually required for the completion of the combined degree program.

During the first two years in Medical School in the typical sequence cited above, the applicant will be encouraged to spend summers and perhaps his elective time in graduate courses, seminars, and research to facilitate his selection of a suitable research topic and a research adviser. Similarly, during the years of concentrated graduate studies he will be encouraged to maintain contact with the clinical environment by participating in clinical rounds and conferences.

The applicant must prepare a tentative program at the time his graduate work is begun. The proposed program must be approved by the department concerned, the Dean of the School of Medicine, and the Dean of the Graduate Division.

At any point in the program, a student in good standing may transfer into either an M.D. program or a Ph.D. program

alone, or into an M.S. degree program. Such a transfer *must* be approved by the chairman of the department involved, the Dean of the School of Medicine, and the Dean of the Graduate Division. Credits from the M.D. program may *not* be transferred to a master's program.

Financial Support

A limited number of assistantships, fellowships, and tuition scholarships are available for qualified students admitted to the various graduate programs.

Application

Application forms may be obtained from the applicant's specific area of interest or from the Graduate Office, Wayne State University School of Medicine.

More detailed information concerning the graduate programs listed above may be obtained from the department in the applicant's specific area of interest or from: Dr. Charles D. Jeffries, Director of Graduate Programs, Wayne State University School of Medicine, 540 East Canfield, Detroit, Michigan 48201.

CONTINUING MEDICAL EDUCATION

Office: 1206 Scott Hall

Director: Gail Bank, Ph.D.

The Continuing Medical Education Program at Wayne State University School of Medicine is accredited by the American Medical Association. The various C.M.E. offerings of the School meet the criteria for Category I of the Physician's Recognition Award of the A.M.A. and the requirements for license renewal of the Michigan Medical Practice Board. Other certifications from various medical specialty societies and boards are secured for individual offerings as may be required.

The Division of Continuing Medical Education was established to provide direction and support for the program. The program is young in terms of the history of the Medical School; it is dynamic and evolving to better respond to the educational needs of practicing physicians and the medical delivery system. The program is concerned not only with addressing the continuing medical education needs of more than half of the physicians residing in the tri-county area of Metropolitan Detroit, but also the needs of the other physicians in the state. The Division also works in close cooperation with the state's other schools of medicine and of osteopathy for the provision of educational opportunities for practicing physicians.

During the year, the various departments in the School present many conferences, symposia, and workshops. Lasting from one to five days, these educational offerings focus on issues, disease processes, procedures, therapies, and other matters relevant in the practice of the profession. Every effort

is made to assist physicians in their continuing efforts to increase their knowledge and to improve their skills in behalf of the patients they serve.

The reputation of many offerings presented annually attracts physicians in different disciplines from a wide geographic area. Some of these programs are: The Harold C. Mack Symposium in Gynecology and Obstetrics; Annual Trauma Symposium in Surgery; the Thyroid Workshop in Internal Medicine; Annual Cancer Symposium in Oncology; courses in rheumatology presented by the Rheumatology Division of the Department of Medicine; and a recurring five-day course in industrial toxicology presented by the Department of Occupational and Environmental Health.

The annual programs, conferences, workshops and symposia developed for a particular year are announced every fall in the Bulletin of Continuing Medical Education Courses. Among these presentations are the Annual Blood Symposium, review courses in anatomy, as well as courses in pathology, immunology and microbiology, radiological physics, electron microscopy, forensic pathology and jurisprudence, and comparative pathology of laboratory animals.

There are increasing pressures on practicing physicians to maintain and update their professional knowledge and skills. Wayne State University School of Medicine is striving to respond to the needs of physicians for continuing medical education. Inquiries may be directed to the Division about specific programs which interest individual physicians or physician groups.

AFFILIATED INTERN-RESIDENT PHYSICIAN PROGRAMS

Graduate Medical Education

Coordinator: Grovenor N. Grimes, B.A.

Wayne State University and five Detroit Medical Center hospitals (Children's, Detroit General, Harper-Grace, Hutzel and Rehabilitation Institute), together with the Veteran's Administration Hospital at Allen Park, sponsor a joint venture in Graduate Medical Education for physicians who are extending their training beyond the M.D. or D.O. degree. This program, the Wayne State University Affiliated Intern-Resident Physician Program, utilizes the impressive clinical resources of the hospitals and clinics of the sponsors in the training of 600 physicians in twenty specialty areas of medicine.

Openings for approximately 140 first year post-M.D. physicians are offered in the following specialties: flexible, family medicine, gynecology/obstetrics, internal medicine, pathology, pediatrics, physical medicine and rehabilitation, radiology-diagnostic, and surgery. Full residencies are offered in the above areas except flexible, as well as in dermatology, emergency medicine, neurology, neurosurgery, ophthalmology, oral surgery, orthopedics, otolaryngology, plastic surgery, thoracic surgery, and urology.

All participants in the program are involved in a system of graduate teaching responsibilities within the realm of clinical

diagnosis and patient care, including contribution to the teaching of medical students who rotate through the clinical department. Orientation programs, teaching conferences and seminars are a systematic part of the graduate medical education of the physicians in the program.

Enrollees in the program must be eligible to register as students in Wayne State University and must have an M.D. degree or equivalent, temporary or permanent licensure to practice medicine in Michigan and approval of the appropriate program director. Appointments on an annual basis to appropriate levels within the Graduate Medical Education Program establish the basis for a stipend which is paid to the physician as a means of personal support while enrolled in the training.

Post-Graduate Medical Education

Coordinator: Grovenor N. Grimes, B.A.

Detroit General Hospital is the major teaching hospital for Wayne State University's School of Medicine at both the graduate and postgraduate levels. Rotating, straight medical, and straight surgical internships are offered, and special emphasis is placed on desired elective rotations within the American Medical Association's guidelines on internship requirements. Regular intern orientation conferences and seminars are conducted, in addition to the teaching provided during rotations in the various departments.

Postgraduate residency programs are available in all the major disciplines in preparation for eligibility approval by the appropriate boards. Graduated teaching responsibilities are allotted to interns and residents within the realm of clinical diagnosis and patient care. Interns and residents contribute to the teaching of all medical students, who rotate through the various departments during their clinical years, with emphasis on the practicalities of the care and management of inpatients and outpatients.

Enrollees in the program must possess an M.D. degree or equivalent and must obtain either a temporary or permanent license to practice medicine in the state of Michigan. Appointment to appropriate levels of postgraduate medical education establishes the basis for a stipend which is paid to the physician as part of the training program.

ACADEMIC PROCEDURES

For complete information regarding academic rules and regulations of the University, students should consult the General Information section of this bulletin, beginning on page 6. The following additions and amendments pertain to the School of Medicine.

ADMISSION

The School of Medicine currently accepts 256 students for its entering class. At least eighty percent of these places are given to residents of the State of Michigan. The students are selected from a large number of applicants. Encouragement is given to qualified students from minority groups and students who bring diversified interests and abilities to the medical profession. Foreign students will not be considered unless they completed at least the last two years of their undergraduate training at a United States college or university. Every effort is made to choose those students who possess the academic and personal characteristics which will enable them to succeed in completing the School of Medicine curriculum.

Academic Requirements for Admission

Although the Wayne State University School of Medicine prefers that applicants for admission have earned a bachelor's degree, it will occasionally consider students of unusual maturity and academic attainment who have completed three years of college.

The specific requirements for entrance are: general physics with laboratory, one year; inorganic and organic chemistry with laboratory, one year each; general biology or zoology with laboratory, twelve semester or eighteen quarter credits. A course in genetics must be taken as part of the biology sequence, and it is advisable that some material on embryology also be included in the biology sequence. One year of English is also required. The School will accept credits earned by special examination in lieu of these courses if the credits are clearly indicated on the undergraduate college transcript as having been accepted by the college toward fulfillment of requirements for the bachelor's degree. The remaining credits must be filled by electives, and the student is urged to select those subjects which will contribute substantially to a broad cultural background. Subjects taken during the course of study in other professional fields may not be substituted for the required premedical courses or any course in the prescribed medical curriculum. Applicants from professional schools must have completed ninety semester credits in liberal arts courses.

Final grades below C are not acceptable in courses required for entrance to the School of Medicine. Residents are usually required to have honor point averages of B or better; non-residents, B-plus or better.

It is to be noted that when students are accepted before completion of their premedical requirements, they must maintain

a satisfactory scholastic average in their continued premedical work to warrant enrollment in the School of Medicine.

The *Medical College Admission Test* is required of all applicants for admission into the first year class. Students seeking admission into the September entering freshman class should take this test no later than October of the previous year. Scores of 550 or better are usually expected from residents; scores of 600 or better from non-residents. After a preliminary review of application credentials, interviews are held with those applicants who warrant further consideration.

Admission to the First-Year Class

The School of Medicine adheres to the acceptance procedures of the Association of American Medical Colleges, including the "Early Decision Plan." Admission procedures of this School are:

1. No place in the first-year class shall be offered to an applicant more than one year before the actual start of instruction for that class.
2. Following the receipt of an offer of a place in the first-year class, a student shall be allowed two weeks in which to make a written reply.
3. Payment of a \$50.00 deposit is required upon acceptance by the student of a place in the first-year class. The deposit will be credited toward the initial tuition payment.
4. The acceptance deposit will be refunded without question upon request.
5. No student who has at any time been requested to withdraw for any reason from a medical school in which he has been registered will be accepted by this School of Medicine. Students who have been dropped for poor scholarship by the School of Medicine may not expect favorable consideration for readmission.
6. Any applicant accepted by the School of Medicine who does not complete enrollment must apply for readmission and meet all requirements in force at the time of such new application.

Admission with Advanced Standing

Students from approved American medical and osteopathic schools, and American students enrolled in foreign medical schools, are admitted with advanced standing to the second and third years only. Application for advanced standing should be made not later than April 1.

The following requirements must be met:

1. An applicant must have matriculated as a student in an approved medical or osteopathic school for a period of time equal to that spent by the class in which he seeks entrance and must have completed courses equivalent to those required of that class.
2. He must file a completed application form and must present official transcripts from each school attended show-

ing that he meets in full the entrance requirement for admission to this School.

3. He must be a student in good standing at the medical or osteopathic school from which he is withdrawing. A letter of support from the dean of that school is required.
4. He must take such examinations in the courses for which he seeks credit as may be required by the faculty of the School of Medicine.

REGISTRATION REQUIREMENTS

Physical Examination — Freshman medical students are sent a physical form with registration materials. Each student must present proof of a physical examination at or before registration for the freshman year. Students are also required to be annually tested for TB (skin test or chest x-ray).

Health Insurance — Students must present at registration proof of health insurance. The University offers low cost health insurance which may be purchased at registration.

Transcripts — Transcripts of all university-level work must be on file in the Registrar's Office for each medical student, including the degree statement from the university from which the student obtained his degree.

FEES

All fees are payable in advance. Listed below are the fees in effect as of the date of this bulletin. They are subject to change at any time without notice by action of the Board of Governors.

MEDICAL STUDENT FEES — REGULAR PROGRAM

	<i>Resident</i>	<i>Nonresident</i>
Annual Fee	\$1842.00	\$3682.00

An initial tuition payment of \$460.50 for residents and \$920.50 for nonresidents must be made at the time of registration. The balance is to be paid in six monthly installments of \$197.50 plus a final payment of \$196.50 for residents; seven monthly installments of \$394.50 for nonresidents. A \$5.00 late fee will be assessed on all payments made after the 15th of each month.

A non-refundable late registration fee of \$10.00 is charged for any registration after the close of the regular registration period; the fee is \$25.00 for registrations more than fourteen days late.

CANCELLATION OF REGISTRATION AND REFUNDS

If a student finds it necessary to withdraw from the University he should notify the Office of Student Affairs, Wayne State University School of Medicine, in writing. If notice of with-

drawal is sent by mail, the date of its postmark will be considered the effective date. The refund schedule is as follows:

Through the end of the
sixth week of classes 100% less \$50.00*
During the seventh through twelfth week of classes 60%
Thereafter No refund

BOOKS AND EQUIPMENT

Books and Supplies—The cost is approximately \$200 per year. Books are available in bookstores near the School of Medicine.

Equipment—The School of Medicine provides microscopes for all entering freshmen and sophomore students. A rental fee of \$75 a year is charged. Each student must provide himself with dissecting instruments.

GRADUATE FEES

Students in the graduate programs offered by the School of Medicine pay regular graduate fees. See the General Information section of this bulletin, page 11.

SCHOLARSHIP

The grading system is: H (honors), S (satisfactory), U (unsatisfactory). The minimum passing grade is S. During the first and second years, unit studies are examined individually and also comprehensively at the conclusion of each year. In order to qualify for promotion to the next class, a student must earn at least an S on the final comprehensive examinations and have shown proficiency in all unit studies. If a student fails a comprehensive examination, the year committee will review the accumulated unit examinations. The unit examinations and the comprehensive examination are mandatory. During the third and fourth years, a student must earn at least an S in all courses and rotations in order to be considered for promotion or graduation and must pass a patient management problem examination given at the end of Year III. During Year IV a grade of S or better must be earned in all courses elected by the student.

PROMOTIONS

Primary evaluation of individual students is the responsibility of: (1) The Year Committee for Years I and II; (2) The Department and Committee or Unit Heads for Years III and IV.

Students are evaluated promptly following the comprehensive examinations in Years I and II and at the end of each rotation in Years III and IV, and recommendations are forwarded to the Promotions Review Committee through the Associate

Dean of Student Affairs. Such recommendations may include re-examination, repetition of an entire year, interruption or suspension of a student's program, or dismissal. Failure of a major course in Years III and IV may be considered grounds for a recommendation of dismissal. The Promotions Review Committee is chaired by the Dean or his designate and consists of twelve members, four nominated from the faculty by the President of the Faculty Senate with the advice and consent of the Executive Committee, four nominated from the Council of Departmental Chairmen, by the President of that council with its advice and consent, four selected by and from the student body. Faculty members serve three-year terms. Student members serve for one year and have full discussion privileges, but not formal voting rights. The Associate Dean of Student Affairs serves as secretary of the Promotions Review Committee.

At appropriate intervals, the Promotions Review Committee meets to review the recommendations of the primary evaluators. The prime function of this review is to ascertain that the rules of the School and the rights of the individuals involved have been fairly met. Decisions are transmitted for the Committee by its secretary, the Associate Dean for Student Affairs. Students are advised of their right to appeal such decisions by direct petition to the Promotions Review Committee. In the event of such an appeal, the Committee shall gather evidence and hear witnesses. The student involved has the right to be heard by the Committee and may call a reasonable number of witnesses to testify on his behalf. The Promotions Review Committee is the final decision-making body with regard to the promotion process and has the prerogative of determining a student's desirability of character and suitability for the study and practice of medicine.

REQUIREMENTS FOR GRADUATION

A student regularly registered in the School of Medicine may receive the degree Doctor of Medicine upon the fulfillment of the following requirements:

1. He must be at least 21 years of age and must exhibit good moral character.
2. He must have satisfactorily completed all the academic requirements established by the School.
3. He must have paid all his fees in full, and have all holds released.

SERVICES

Health Service—The health care of medical students is free at the Medical Student Health Service temporarily located in the Professional Plaza. There is a fee for care of wives and children. In addition, medical students have access to the Wayne State University Health Service in Mackenzie Hall.

Counseling—Appointments for academic and personal counseling can be arranged through the Office of Student Affairs.

Study Skills Counseling—A study-skills specialist in techniques designed for the medical curriculum is available throughout the year to students interested in sharpening their study skills or students experiencing difficulty.

* \$50.00 is withheld only if the student withdraws from all courses.

MEDICAL SCHOOL DIVISIONS

CONJOINT TEACHING SERVICES

Office: 2352 Scott Hall

Director: Richard L. Wells, B.S.

Laboratory Supervisor: Henry L. Fetz, M.T. (ASCP)

This unit has as its prime function the coordination of the laboratory teaching functions of the curriculum which are centered in the multidiscipline laboratories of the Gordon H. Scott Hall of Basic Medical Sciences.

EDUCATIONAL SERVICES AND RESEARCH

Office: 115 Health Science Annex

DIRECTOR

Richard E. Gallagher

ASSOCIATE PROFESSORS

Richard E. Gallagher, Frank M. Koen, Norval C. Scott

ADJUNCT PROFESSOR

Gail I. Bank

ASSISTANT PROFESSORS

Theresa Cali, Michael B. Donnelly, Martin J. Hogan, Deagelia M. Pena

COMPUTER APPLICATIONS

Barry L. Wolfe

EXAMINATION SERVICES

Patricia Barrett

MEDICAL INTERVIEWING: SUPPORT SERVICES

Josephine W. Capponi

The major functions of the Division of Educational Services and Research are to provide research, development and service support for the various educational programs of the School of Medicine and to train educational specialists for careers in health science programs.

In carrying out its service and development function, the Division works with the full spectrum of educational programs within the School of Medicine including the undergraduate, the graduate, and continuing medical education phases of the medical education continuum.

Education Development Functions

The Division's major areas of concern are (1) curricular and instructional development, (2) curricular and student evalua-

tion and (3) the development of faculty teaching skills. In carrying out its mission, the Division works with various faculty committees and academic departments of the Medical School as well as individual faculty members. Assistance is provided in the preparation, administration and analysis of written examinations; the development of methods for assessing various dimensions of clinical performance and in analyzing and correlating student performance with other factors in the teaching-learning environment.

The Division provides assistance in the design and development of self-instructional materials as well as broader aspects of curriculum planning and implementation.

The Division conducts workshops for faculty which are designed to improve the skills of faculty in the planning, implementation and evaluation of instruction. The Division also offers electives for undergraduate medical students and residents in medical specialty training.

Degree Programs

Two degree programs are offered. One program leads to the awarding of a Master of Education degree; the other program leads to the awarding of a Doctor of Philosophy in Education degree. The programs are the joint effort of the Educational Evaluation and Research program area (EER) within the Division of Theoretical and Behavioral Foundations of the College of Education and the Division of Educational Services and Research (DESR) of the School of Medicine. Both degrees are granted by the College of Education. Detailed information on admission can be obtained from the offices of EER or DESR.

MEDICAL COMMUNICATION

Office: 1369 Scott Hall

DIRECTOR

Morton B. Miller

STAFF

Roy Anger, Medical Photographer

Dale Cetlinski, Graphic Artist

Wayne Cox, Media Distribution Supervisor

Leonard Deneweth, Graphic Arts Coordinator

Lynette Dobbs, Graphic Designer

Florence Dogariu, Accounting Clerk

Arthur Dozier, Broadcast Technician

Lawrence Dworin, Communications Technician

Rodney Hartwig, Graphic Artist

Susan Hurst, Learning Resources Librarian

Ellen Jacobs, Medical Illustrator

Halina Karabacz, Learning Resources Librarian

Julie Kmetz, Coordinator, Medical Photography

Sandi Kravetz, Learning Resources Librarian

William Leochel, Chief Medical Illustrator

Judy McNaught, Communications Technician

Ann Nelson, Division Secretary

David Neumann, Production Coordinator

Susan Olcott, Communications Technician

Michael R. Potochick, Associate Director
Grace Schassberger, Medical Illustrator
Nick Spanos, Medical Photographer
Edward Wales, Cinematographer
Dan Wohlgenuth, Electronics Technician
Robert Wright, Chief Medical Photographer
Frank Zampach, Medical Photographer

The Division of Medical Communication is responsible for the production and utilization of effective and innovative instructional technology in the teaching program. It consists of five units: medical photography, medical illustration, graphic design, media production, and distribution-and-learning resources.

The Medical Communication Division works closely with the Division of Educational Services and Research in designing, producing and disseminating teaching materials that are integrated in the Medical School's curriculum.

The Medical Photography unit routinely handles photographs of the following: patients before, during and after treatment; gross anatomical specimens; copying of charts, graphs and other illustrated material for publication and to be made into projection slides for teaching and medical meetings; copying of x-rays for teaching and publication; photographs of research equipment, methods and results; operation room procedures, photomicrography of tissue slides and public relations photos.

Staffed by three accredited A.M.I. members, the *Medical Illustration unit* provides drawings at the operating table, illustrations from dissections and pathological specimens. Interpretive drawings based on clinical data are rendered where physiological data can be shown anatomically for research, publication, and instructional projects.

The Graphic Design unit is responsible for an impressive variety of art work, which includes: exhibits, publications, illustrative material for motion picture films, television video tapes and slide/sound self-instruction modules, and graphs, charts, signs and posters.

The Media Production unit is composed of cinematography, television, slide-sound and microfiche production. Professional 16mm motion picture films of surgery procedures, documentation of research projects and techniques of medical methodology are produced-for faculty. Color television video tapes of broadcast quality are produced in the Scott Hall TV Studio. Portable television equipment, utilizing the video cassette recorder and miniature color camera, can be set up anywhere in the medical center complex. Microfiche cards and 35mm slides, designed in conjunction with narrated audio tapes, are produced for the instruction of medical students in the self-instruction centers.

The Media Distribution and Learning Resources unit plays a significant role in the first two years of the curriculum. It is responsible for the operation and maintenance of all audio-visual equipment in the three lecture halls, the M-D labs, study carrels and various conference rooms. Four fully equipped self-instruction centers (located at Harper Hospital, Hutzel Hospital, and Scott Hall) are available to students to

study materials at their own pace. Instructional projects, produced by Medical Communication or obtained from other educational resource agencies, are checked out by media librarians in each of the centers. Temporary loan of audio-visual equipment is available for medical school faculty.

SHIFFMAN MEDICAL LIBRARY

MEDICAL LIBRARIAN

James F. Williams II

STAFF

George Lupone, Serials Librarian
Catherine Carter, Interlibrary Loan Librarian
Helen Dimanin, Data Coordinator, KOMRMLP
Anaclare Evans, Cataloger
Mary E. McNamara, Associate Medical Librarian
Penny Oswant, Circulation Assistant
Patricia Bristor, Circulation Librarian
Ruth Taylor, Acquisitions Librarian
Faith Van Toll, Consortium Coordinator, KOMRMLP

The School of Medicine Library is located in the Vera Parrshall Shiffman Medical Library building. The structure houses University Library's medical collections consisting of some 120,000 volumes — the major biomedical collection in the area.

Besides the usual circulation and reference services to the Medical School personnel, the library services other institutions through interlibrary loan; these requests number more than 20,000 per year.

To aid community health care and health sciences education, the library cooperates with other institutions to study present information services in order to establish a suitable library network for the metropolitan Detroit area. The results appear in a continuing Report Series published by the School of Medicine Library and Biomedical Information Center.

In addition, the Shiffman Medical Library houses the Central Office of the Kentucky, Ohio, Michigan Regional Medical Library Program, an organization composed of the eleven medical and dental schools of the three-state region supported in part by federal funds. The Regional Medical Library's function is to provide access to the library resources throughout the region to all qualified users.

UNIVERSITY RELATIONS

Alumni Development: Mildred C. Fox, B.A.

The Division of University Relations of the School of Medicine is responsible for four major functions of the School of Medicine: publications, media relations, alumni relations, and development.

Publications include the *Alumni Report*, a quarterly magazine for alumni, faculty, staff and friends; an admissions information brochure; and various other printed materials.

Media Relations: The Division publicizes newsworthy events and features involving appointments and personal achievement of faculty, staff and alumni. Features are prepared for use by the print media and for radio and television broadcast to help educate the public to the types of services and the goals of the School of Medicine and the Detroit Medical Center. The Division also coordinates educational tours of the Medical School.

Alumni Relations: Each year the W.S.U. Medical Alumni Association conducts a Clinic Day and Alumni Reunion consisting of scientific discussions by leading scientists, and an awards program to recognize distinguished alumni and faculty. The Association provides scholarships which are awarded at Commencement. One or more out-of-the-country postgraduate seminars are conducted each year, in addition to the School's sponsorship of reunions at several medical specialty conventions around the country. Alumni and former residents (over 5,500) and their wives are encouraged to maintain close ties with the School, either by active participation in alumni affairs, by exchanging news notes with their class agents, or by attending and participating in various School functions. The Division carries out the decisions and plans made by the W.S.U. Medical Alumni Board of Governors.

Development: The Division conducts a yearly campaign for the W.S.U. Medical School Annual Fund. Now in its sixth year, the Fund's income provides scholarships, loans, financing for research projects, campus beautification and other programs which are not regularly funded by State or other governmental agencies. The Appropriations Committee of the Medical School Annual Fund disburses undesignated gifts received by the School of Medicine. The Division actively seeks both small and large gifts and gifts from private corporations to further advance the goals and purposes of the Medical School.



ANATOMY

Office: 8374 Scott Hall

Chairman: Harry Maisel

PROFESSORS

Maurice H. Bernstein, Bent G. Boving, Clement A. Fox, Morris Goodman, Stephen T. Kitai, Gabriel W. Lasker, Harry Maisel, David B. Meyer, Nicholas J. Mizeres

ASSOCIATE PROFESSORS

Jose A. Rafols, Martha K. Rodin, Warren Schneider

ADJUNCT ASSOCIATE PROFESSOR

Rene A. Archambault

ASSISTANT PROFESSORS

Jose R. Alcalá, Mihir Bagchi, John A. Beal, Jr., Margaret H. Cooper, William J. Crossland, Arthur M. Hamparian, James C. Hazlett, Jr., Linda D. Hazlett, Jeffery D. Kocsis, Mauricio A. Lande, J. A. Mitchell, Roberta G. Pourcho, Alejo E. Romero-Herrera, Edward G. Tracy, Phillip R. Waggoner, Allan Weinsieder

ADJUNCT ASSISTANT PROFESSORS

Eugene I. Plous, Lacey Walke

INSTRUCTOR

Jessie I. Wood

ASSOCIATES

Archie W. Bedell, Family Medicine; David S. Carlson, Center for Human Growth, University of Michigan; Clifford V. Harding, Ophthalmology; Raymond L. Henry, Physiology; Gino G. Saliccioli, Orthopedic Surgery; Mark L. Weiss, Anthropology

The courses of the Department of Anatomy present the human body from its initial differentiation, through development and growth, to adulthood. Functional aspects are included so as to clarify structural features. The basic aims of the department are to provide an understanding of human anatomy as preparation for clinical work.

The department offers programs leading to the degrees of Master of Science and Doctor of Philosophy. These programs are intended to provide professional training for potential members of the academic disciplines of the anatomical sciences as well as research training.

Investigative areas represented within the department include gross, microscopic and developmental anatomy; cardiovascular physiology; neuroanatomy; histochemistry; human biology; reproductive biology; neurophysiology; cell and tissue ultrastructure; and immunobiology. Students in the graduate programs are expected to concentrate their studies in a particular area of interest, but they are also expected to acquire adequate training in all branches of the anatomical sciences.

ANESTHESIOLOGY

Office: 1203 Scott Hall

Chairman: Eli M. Brown

PROFESSORS

Eli M. Brown, Gianfranco Dal Santo

ASSOCIATE PROFESSORS

Roy Aston, Shirley Austin, Gerhard C. Endler, Sik W. Ting

CLINICAL ASSOCIATE PROFESSOR

Bernard Sivak

ASSISTANT PROFESSOR

Orlando S. Sison

CLINICAL ASSISTANT PROFESSORS

Gaylord Alexander, Charles Berman, John Calwell, Marvin Jewell, David Simpson, Raymond Sphire, Milford Wenokur, Grant Withey

INSTRUCTOR

Selma Qureishi-Velilla

CLINICAL INSTRUCTORS

Edward Bartholomew, Gerald Berlin, Rolf Donath, Raniero Di Piero, Peregrino Guillen, Thomas Morley, A. Michael Prus, Michael Rosenberg, Alfred Rubenstein, Barry Smiler, Sidney Soifer

A one-month elective in anesthesiology is offered to medical students during the senior year. The student may select to have this elective at one of a number of designated hospitals in the Detroit Metropolitan Area — or, upon special request and with the approval of the department chairman, at some other institution.

The major objectives of an elective in anesthesiology include the acquisition of skills and knowledge related to: (1) airway management, including endotracheal intubation; (2) lumbar puncture and spinal anesthesia; (3) monitoring of anesthetized patients; (4) pharmacology of anesthetic agents and other drugs related to anesthesia; (5) preoperative evaluation and preparation of a patient for anesthesia and surgery; (6) physiology of the perioperative period; (7) respiratory therapy including management of patients who require prolonged ventilator care; and (8) management of acute drug intoxication. The program is comprised of individual instruction in the operating room and a series of regularly scheduled seminars.

AUDIOLOGY

Office: 502 Rehabilitation Institute

Chairman: John H. Gaeth

PROFESSORS

John H. Gaeth, George E. Lynn

ASSOCIATE PROFESSOR

Doris V. Allen

CLINICAL ASSOCIATE PROFESSOR

A. Bruce Graham

ASSISTANT PROFESSORS

Robert H. Brey, Dale O. Robinson

CLINICAL ASSISTANT PROFESSORS

Mary Rose Costello, Ronald Ford, Donald E. Lubbers, Donald Neilsen, Robert L. Paul

INSTRUCTORS

Francis Eldis, Gilmour Peters

The Department of Audiology functions in close cooperation with the Speech and Hearing Clinic, the Departments of Otolaryngology, Physical Medicine and Rehabilitation; Psychology, Speech Communication and Theatre (College of Liberal Arts); and the Divisions of Teacher Education, and Theoretical and Behavioral Foundations (College of Education). Graduate work leading to the master's and doctor's degrees is offered in cooperation with several of the above departments.

Audiology is concerned with the auditory aspects of communication. Thus the measurement of hearing, the interrelationships between the development of speech and language and hearing losses, the auditory symptoms of disease entities, and especially the habilitation and rehabilitation of individuals with hearing losses are the major interests of audiologists. The teaching program includes contact with the undergraduate students through the Department of Otolaryngology, a series of lectures to the senior medical students and the residents of otolaryngology and to the nurses and students through the Department of Physical Medicine and Rehabilitation. Some formal courses are designed for students preparing to teach the deaf and hard-of-hearing and for the speech and hearing clinician. Majors leading to the Master of Arts and the Doctor of Philosophy are available. The department offers wide clinical experience under the direct supervision of the faculty and staff in the Rehabilitation Institute, Detroit General Hospital, Childrens Hospital, Veterans Administration Hospital, Henry Ford Hospital, Hutzel Hospital, Harper Hospital, private offices, and at the Lutheran School for the Deaf.

BIOCHEMISTRY

Office: 4374 Scott Hall

Chairman: Ray K. Brown

PROFESSORS

Sam C. Brooks, Ray K. Brown, C. P. Lee, James M. Orten (Emeritus), Serge N. Vinogradov

ASSOCIATE PROFESSORS

Danka Dabich, Marilyn S. Doscher, Richard A. Hudson, James J. Lightbody, Leonard I. Malkin, Robert A. Mitchell, Charles J. Parker, Jr., Demetrius Tsernoglou

ADJUNCT ASSOCIATE PROFESSOR

Joseph D. Shore

ASSISTANT PROFESSORS

Joseph C. Bagshaw, David R. Evans, Lawrence Grossman, Paul H. Johnson, Robert M. Johnson, Gregory A. Petsko, Jurij Rozhin

ADJUNCT INSTRUCTOR

Raymond E. Karcher

ASSOCIATES

Joyce Benjamins (Neurology), Ta-hsu Chou (Biochemistry in Oncology), Felix-Madrid Fernandez (Internal Medicine), Robert L. Millette (Immunology and Microbiology), Vishwanath M. Sardesal (General Surgery), Frank N. Snyder (Gynecology and Obstetrics), Clarence B. Vaughn (Oncology), Bennie Zak (Pathology), Jiri Zemlicka (Oncology)

Biochemistry for students of medicine and of the basic medical sciences emphasizes the chemical composition and environment of cells and the metabolic mechanisms involved in cellular maintenance and function; the biological sources of energy and the pathways for its formation; intermediary metabolism as a dynamic interplay between cellular constituents, structures, substrates and stresses; the role of nucleic acids in cell function. The laboratory familiarizes students with the experimental basis of certain biochemical concepts and techniques of significance in the biological sciences.

GRADUATE PROGRAMS

The Department of Biochemistry offers programs leading to the Master of Science and Doctor of Philosophy degrees for students planning careers in teaching or research. The department attempts to pattern students' programs according to their interests and, at the same time, to provide them with a wide experience in the major areas of biochemistry. A combined M.D.-Ph.D. program with a major in biochemistry is also available.

Admission — Students applying for admission must meet the following requirements: the possession of an undergraduate degree in chemistry, biology or physics is preferred, although

others may apply; the minimum honor point average is 3.0 for the Ph.D. program, and 2.5 for the master's program. A personal interview with the Graduate Officer or his designated representative is necessary. The Graduate Record Examination with the advanced test in biology or chemistry is required for unconditional admission, although a student may be admitted on probation until completion of the Examination. Foreign students must be proficient in English as determined by an interview with the Graduate Officer or his representative.

Degree Requirements—Applicants for the master's degree must take forty-five credits, of which at least twelve will normally be in master's research and thesis. All master's degree students must take Biochemistry 0701-0704.

Applicants for the Doctor of Philosophy degree must complete 135 credits, including at least forty-five in research and dissertation, twelve to fifteen in a minor, and seventy-five to eighty credits distributed between the major and required cognate courses. To fulfill major requirements, students must take Biochemistry 0701-0704, 0762, 0764 and 0768. The residence requirement of one year is normally met by the completion of ten quarter credits of work in each of three successive quarters. At least forty-five credits of graduate work must be taken at the University.

Each student must arrange his program in an area of minor concentration with a representative of the department in which he plans to minor and preferably with the representative on the doctoral committee. Concentrations in the following are acceptable as minors: organic chemistry, physical chemistry, physical-organic chemistry, microbiology or immunology, pharmacology, physiology, and biology.

COMMUNITY MEDICINE

Office: 129 Health Sciences Building

Chairman: Theodore Goldberg

PROFESSOR

Theodore Goldberg

ADJUNCT PROFESSORS

Solomon J. Axelrod, Ruben Meyer

ASSOCIATE PROFESSORS

David C. Nolan, Allen Reed, William Steslicke

ADJUNCT ASSOCIATE PROFESSORS

Thomas M. Batchelor, George E. Cartmill, Jr., William V. Clexton, Jacques J. Cousin, John C. Donaher, Jr., Frederick W. Hyde, Jr., Julien Priver, Norbert Reinstein

ASSISTANT PROFESSOR

Eleanor Nishiura

ADJUNCT ASSISTANT PROFESSORS

Abraham Brickner, Terence E. Carroll, Ethelene J. Crockett, Andrew W. Dahl, Bettye S. Elkins, J. Kay Felt, Symond R. Gottlieb, Elliott G. Roberts, Evelyn Rogers, William Rothman

INSTRUCTORS

Gerald W. Aldridge, Alma P. Chand, Gary Levitz

ASSOCIATES

Ronald Krome, Walter A. Markowicz, Irving Posner, Judith E. Tintinalli

The Department of Community Medicine is concerned both with the study of the distribution and determinants of disease within populations, as well as with the study of how health services are organized, delivered, financed and evaluated. Particular attention is given to problems of disadvantaged and medically underserved populations. This program, for students in their first, second and third years, includes lectures, seminars and field work involvement in private family physicians' offices, prepaid group practice clinics, community clinics, and other major community health agencies. In class and in field work activities, students deal with the concept of health manpower, alternate methods of delivering health care, financing of health care services, comprehensive and family medicine, and social-legal aspects of medicine. Attention is also given to the obligations and efforts of society and government to protect and promote the health of its citizens. Collaboration with other schools in the University, such as the School of Social Work, the College of Nursing and the College of Pharmacy and Allied Health Professions, allow for an inter-disciplinary approach to study of the health care system.

The Department also provides elective opportunities for students who wish to concentrate for varying periods of time on aspects of community health or family medicine during their senior elective year. Senior electives also include opportunities for students to work on epidemiological problems in collaboration with the Detroit Health Department and others.

COMPARATIVE MEDICINE

Office: 119 Health Sciences

Chairman: A. G. Edward

PROFESSORS

A. G. Edward (Laboratory Animal Medicine), D. DeGiusti (Parasitology)

ASSOCIATE PROFESSORS

Merlin E. Ekstrom (Veterinary and Comparative Pathology),
Andreas von Recum (Experimental Surgery)

ASSISTANT PROFESSOR

C. Sterling (Protozoology-Electron Microscopy)

ADJUNCT ASSISTANT PROFESSORS

Reed Rings (Public Health), Kathleen Smiler (Veterinary Medicine)

INSTRUCTOR

Alejandro Thiermann (Epidemiology)

ASSOCIATES

David Nolan (Epidemiology), John Taylor (Developmental Biology-Electron Microscopy)

The Department of Comparative Medicine functions closely with the Division of Laboratory Animal Resources. It is designed to bridge the gap between education and research in human and veterinary medicine. The department offers courses in animal experimentation and surgery to graduate students in the biomedical sciences.



DERMATOLOGY AND SYPHILOLOGY

Office: 753 Farwell Annex, Detroit General Hospital
Chairman: Donald J. Birmingham

PROFESSORS

Donald J. Birmingham, Hermann Pinkus (Emeritus)

CLINICAL PROFESSORS

John N. Grekin, Amir H. Mehregan, Coleman Mopper

ASSOCIATE PROFESSORS

Isadore Botvnick, Aurel P. Lupulescu, Earl J. Rudner

CLINICAL ASSOCIATE PROFESSORS

Jules Altman, Lee Carrick, Ralph J. Coskey, Charles J. Courville, Richard J. Ferrara, Louis S. Leland, Harold Plotnick, Robert J. Schoenfeld, Oscar Schwartz, Benjamin Schwimmer, Andrew E. Segal, Renato G. Staricco, Harold E. Usndek, Rudolf E. Wilhelm

ASSISTANT PROFESSORS

Thomas A. Chapel, Thomas F. Downham II, L. Boyd Savoy, Rosalyn Y. Weintraub

CLINICAL ASSISTANT PROFESSORS

J. David Ausum, Myron Barlow, John D. Butler, Neldagae Chisa, Alan D. Cohen, Richard F. Elton, Robert P. Fosnaugh, Stanley Greenberg, Martin Hart, Robert P. Heidelberg, John R. King, Lawrence Krugel, Marvin D. Siegel, Richard H. Smith, Julius Stone, James D. Stroud, Antoinette Tanay

CLINICAL INSTRUCTORS

Martin L. Abbrecht, Stanley Alfred, David Blum, Jon H. Blum, Henry G. Bryan, Carl J. Cohen, Larry E. Heath, Marvin E. Klein, Sanford Kornwise, Bruce L. Krieger, Edward S. Lerchin, Antonina Miller, Constantin Predeteanu, Homayoon Rahbari, Daisy P. Ramos, Everett B. Simmons, Jr., Daniel M. Stewart, Stephen W. Sturman

ASSOCIATES

Charles D. Jeffries (Immunology and Microbiology), Nikolai Rachmaninoff (Pathology)

The primary aim of the Department of Dermatology and Syphilology is to teach the importance of the skin as a vital organ of the body. The basic principles of medicine exemplified in the skin and its diseases are interwoven with general body pathophysiology. Thus the knowledge of dermatology is useful in the general concept of medical education as well as in specific diagnosis and treatment of cutaneous disorders.

FAMILY MEDICINE

Office: 408 McLaughlin Hall

Chairman: Joseph W. Hess

Director of Family Practice Residency: Joseph W. Hess

PROFESSOR

Joseph W. Hess

ASSOCIATE PROFESSORS

Darwin J. Belden, Sol Leland, Dwight M. Schroeder

CLINICAL ASSOCIATE PROFESSORS

Archie W. Bedell, Alegro J. Godley

ASSISTANT PROFESSORS

Esly S. Caldwell, John J. Kowaleski

CLINICAL ASSISTANT PROFESSORS

John M. Battle, Eugene J. Cetnar, Murray A. Deighton, Martin J. Gorelick, Cecilia F. Hissong, George Mogill, Jack Ryan

CLINICAL INSTRUCTORS

Vincent B. Adams, Korkut M. Akan, Joseph Arends, Donald R. Ballard, Gerald Banish, Leonard Birndorf, Roy W. Boyer, Carmelita R. Co-Casquejo, Doris E. Dahlstrom, Miriam S. Daly, Robert D. Danforth, Bernard Dash, George A. Dean, Betty J. DeLawrence, Thomas J. Ganos, Norman F. Gehringer, John A. Geralt, Donald G. Gerard, Edmond J. Gostine, William G. Grannis, Lewis Green, Morris Greenberg, Camille K. Harize, Van O. Keeler, Monroe J. King, Hans J. Koek, Charles J. Lapp, Jack Litwin, John W. MacKenzie, Peter F. Nowosielski, Thomas A. Padden, Edward A. Petoskey, Gerald Rakotz, Mervyn B. Ross, Ronald L. Rhule, William D. Sharpe, Abraham B. Solomon, Amos Taylor III, Thomas A. Tenaglia, Larry G. Thompson, Everal M. Wakeman, Israel Wiener, Dale L. Williams, Ralph F. Woodbury, Leoric N. Yuille, Louis R. Zako

ASSOCIATES

Richard D. Anslow (Internal Medicine), Martin Atdjian (Internal Medicine), George Blum (Pediatrics), John B. Bryan (Internal Medicine), Alberto Cohen (Internal Medicine), Douglas E. Cox (Pediatrics), Robert Cubberley (Internal Medicine), Harold H. Gardner (Community Medicine), Charles G. Jennings (Pediatrics), Cheng-Chong Lee (Internal Medicine), Leon Morris (Internal Medicine), Kenneth Newton (Internal Medicine), L. Raj-S. Patil (Occupational and Environmental Health), Irving Posner (Pediatrics), George Ritter (Internal Medicine), Thomas B. Stock (Internal Medicine), Ronald Trunsky (Psychiatry), Ignatios Voudoukis (Internal Medicine), Edward J. Zaleski (Internal Medicine)

The Department of Family Medicine participates in the teaching programs of the School of Medicine at the undergraduate, graduate (residency) and postgraduate (continuing medical education) levels.

UNDERGRADUATE INSTRUCTION

In the first year, the Department of Family Medicine participates with the Departments of Community Medicine and Psychiatry in the year-long freshman program, Introduction to Family and Community Health Care. In the second year, the Department conducts clinical discussions which relate family practice to the basic science programs, and collaborates with the Department of Psychiatry in the Doctor-Patient Relationship Program. In the third year, the Department is responsible for a four week Clerkship in Family Medicine. This experience includes orientation to the problems and techniques of office management, emphasizes a broad look at the organization of health services and the utilization of these services in communities, and involves three and one-half weeks of work as a preceptor with a family practitioner or other primary care physician. In the fourth year, the Department sponsors elective preceptorships in family practice and a senior rotation in family medicine in the Detroit Medical Center.

GRADUATE EDUCATION

The Department, in association with Harper-Grace and other Medical Center hospitals, sponsors a three year accredited Family Practice Residency Program. The residency is sponsored in cooperation with Harper-Grace Hospital; however, all Medical Center hospitals participate in the training program.

POST-GRADUATE EDUCATION

The Department plays an active role in providing continuing education for family physicians in practice throughout Michigan and surrounding areas. This takes the form of three- to five-day intensive programs for family physicians in addition to monthly and bi-monthly conferences held throughout the year, primarily for family physicians in the Detroit area.

As part of the educational function, faculty physicians and family practice residents are actively engaged in being family doctors. Patient-care functions are performed in collaboration with other health professionals such as nurse clinicians, clinical pharmacists and social workers. Their services are available to persons of all ages in the community, including students, staff and faculty of the University and their families. Admissions for in-patient care are to Medical Center hospitals.

Departmental research interests focus on methods of assessing and improving the delivery of health services, with particular emphasis on preventive health care and keeping people well.

GENERAL SURGERY

Office: 2028 Harper Hospital

Chairman: Alexander J. Walt

PROFESSORS

Agustin Arbulu, Adrian Kantrowitz, Charles E. Lucas, Warren O. Nickel, Irwin K. Rosenberg, Jerry C. Rosenberg, Alexander J. Walt, Robert F. Wilson

CLINICAL PROFESSORS

Clifford D. Benson, Norman D. Nigro, Joseph L. Posch, Harry C. Saltzstein (Emeritus)

ASSOCIATE PROFESSORS

Ramon Berguer, J. Howard Binns, Jack H. Hertzler, Louis W. Kaufman, John R. Kirkpatrick, Ronald L. Krome, Anna M. Ledgerwood, Vishwanath M. Sardesai, Yvan J. Silva, Zwi Steiger, Choichi Sugawa, Arthur W. Weaver

CLINICAL ASSOCIATE PROFESSORS

Eduardo Arciniegas, Gaylord S. Bates, Ernest M. Berkas, Conrad Bernys, John Reid Brown, William S. Carpenter, Jay C. Day, Thomas M. Flake, C. Jackson France, Lyle F. Jacobson, Angelos A. Kambouris, William A. Lange, Alfred M. Large, Robert D. Larsen, Herbert J. Robb, Homer M. Smathers, Rodman E. Taber, Hilary H. Timmis, Henry VandenBerg, Jr., Gerald S. Wilson

ASSISTANT PROFESSORS

Ingida Asfaw, Brooks F. Bock, Roger F. Higgins, Charles L. Huang, Arnold M. Jones, Joseph S. Krakauer, John N. Mehelas, F. Bruce Monroe, Arvin I. Philippart III, John Plant, Suryanarayanan Sankaran, Donald B. Smith, Judith E. Tintinalli, A. Neal Wilson

CLINICAL ASSISTANT PROFESSORS

Robert D. Allaben, Federico A. Arcari, Raymond J. Barrett, Joseph S. Bassett, Claude Benavides, Alexander Blain III, James B. Blodgett, George T. Bradley, Waldo L. Cain, John W. Derr, Elmer P. Elias, Vincent J. Gallant, William A. Harrity, John M. Hartzell, David B. Hawtof, John A. Ingold, Franklin R. Jackson, Patrick F. Jewell, Ali Kafi, Donald I. Kapetansky, Floyd H. Lippa, James R. Lloyd, Robert J. Lucas, Peter W. McCabe, William G. McEvvitt, Don W. McLean, Elmer B. Miller, Mofid Mitri, Frank Monaco, Charles A. Murray, Larry R. Pelok, Stewart E. Pursel, Andres RestoSoto, Paul Rizzo, Saul Sakwa, Krishna K. Sawhney, Robert R. Threlkeld, Balak R. Verma, Vollrad J. VonBerg, John F. Weiksnar, Fredrick Weissman, Gary J. Welsh, Scott W. Woods.

INSTRUCTORS

Robert L. Campbell, Elizabeth J. Dawe

CLINICAL INSTRUCTORS

Elie D. Abouafia, Susan E. Adelman, Thomas C. Arminski, Zacarias G. Asuncion, Chairat Chomchai, Bernard Eisenstein,

Paul G. Firmschild, Solomon Goldenberg, Medhi Hakimi, Ernest A. Hershey, George C. Hill, Lloyd A. Jacobs, Herbert S. Jacobson, Kim K. Lie, Hayward C. Maben, Roger F. McNeill, Seid Moossavi, Frank W. Prust, Ward M. Smathers, Andrew E. Stefani, Oscar C. Tumacder, Blaine C. White

ASSOCIATES IN SURGERY

Lucy Brand, Allen Silbergleit

The main objectives of the Department of General Surgery are to relate the principles of the basic sciences to clinical practice and to stress details of patient care in the light of modern physiological and pharmacological knowledge.

The accent is on the understanding of the deranged metabolic processes occasioned by surgical disease and trauma, the translation of these into recognizable symptoms and signs, and the rational correlation of therapy with these basic disturbances. The operation is taught as only one aspect of patient care and emphasis is placed on the relationship of the doctor to other personnel who form part of the health team. Students are assigned certain patients for study and are encouraged to develop a sense of personal responsibility for their care. Necessary parallels to these goals are both awareness of and involvement in clinical investigation in the hospital. Students gain exposure to pediatric surgery at Children's Hospital of Michigan and a wide clinical experience at Detroit General, Veterans Administration in Allen Park, and Harper-Grace Hospitals where they are an integral part of the various surgical services.

A unique experience is provided to each student by a two-and-one-half week rotation on the emergency division at Detroit General Hospital. This rotation enables the student to participate in the multi-discipline management of acutely ill and injured patients both in the emergency room and on the wards.

Students are encouraged to participate in experimental and clinical research programs with staff supervision during their senior elective periods and summer vacations. The program is designed to provide the student with the opportunity to develop career interests in general surgery at an early stage.

GYNECOLOGY AND OBSTETRICS

Office: 120 Mott Center

Chairman: T. N. Evans

PROFESSORS

Bent G. Boving, Charles R. Boyce, T. N. Evans, E. S. E. Hafez, K. S. Moghissi, Alfred I. Sherman

CLINICAL PROFESSOR

C. Paul Hodgkinson

ASSOCIATE PROFESSORS

William B. Kirtland, Jr., Ann L. Koen, Don R. Krohn, Bernard Mandelbaum, R. Ralph Margulis, Federico G. Mariona, John Michael O'Lane, John P. Ottaway, Joan C. Stryker, Frank N. Syner, John Y. Teshima, Lawrence P. Tourkow, Charles C. Vincent

CLINICAL ASSOCIATE PROFESSORS

Mario A. Petrini, Anthony T. Salvaggio, Lee B. Stevenson

ASSISTANT PROFESSORS

Hassan Amirikia, Milton H. Goldrath, Anthony G. Sacco, Edward C. Yurewicz

CLINICAL ASSISTANT PROFESSORS

William M. Chavis, Robert W. Dustin, Arthur W. Eckhous, David Feld, William S. Floyd, G. Peter Halekas, Leonard P. Heath, William H. Jevons, James Kormmesser, Morton R. Lazar, Harvey D. Lynn, Henry W. Maicki, Philip S. Peven, Addison E. Prince, Robert E. Reid, John A. Tulloch, Robert G. Walkowiak, James N. Wardell, Charles H. Wright

INSTRUCTORS

Elizabeth R. Brenner, John J. Peluso, Marilyn Poland, Richard W. Steger, Bohdan Zarewych

CLINICAL INSTRUCTORS

Mohamed A. Ariani, Mostafa Bonakdar, William G. Bentley, Allen Berlin, Edward Cashman, S. Leonard Cohn, Panfilo C. DiLoreto, Harry L. Doerr, Sami F. Guindi, Donald M. Heggen, E. Rae Hudspeth, Cecil R. Jonas, Minuchehr Kashef, James Labes, David I. Lipschutz, John Malone, Donald D. Masse, Anis A. Milad, Karl L. Miller, Eugene Otlewski, James H. Robinson, Harold Rosen, Albert Rosenthal, Michael S. Salesin, Franklyn Seabrooks, Lorraine A. Sievers, Eugene A. Snider, Joseph Stern, Leonard B. Sudakin, Constance Tubbs, Joseph Watts, Irvin A. Wilner, Warren A. Wood, Joseph Woods

Part-Time Faculty

PROFESSOR

Aaron Rutledge

ASSOCIATE PROFESSOR

William S. Floyd

ASSISTANT PROFESSOR

Arthur G. Seski

INSTRUCTORS

Julius V. Combs, Eli M. Isaacs

ASSOCIATES

Sam C. Brooks (Biochemistry), John A. Churchill (Neurology), Danica Dabich (Biochemistry), Louis Hoffman (Psychiatry), Robert B. Leach (Internal Medicine), Charles Lucas (Associate Professor of Internal Medicine), Eugene V. Perrin (Pathology)

The discipline of gynecology and obstetrics is concerned with the health of women in relation to their reproductive functions. This concept implies a knowledge that extends from embryology to gerontology. A prime objective of the Department of Gynecology and Obstetrics is to present and add to current knowledge of the physiology and pathology of reproduction. The gynecologist not only supervises the birth process but also deals with organic and functional aberrations of related structures. This involves surgery for congenital and acquired diseases as well as endocrinological and medical treatment of non-surgical disorders. Future evolution of gynecology points toward a liberal adaptation of basic science and integration of related clinical specialties.

Students gain clinical experience in gynecology and obstetrics in seven affiliated hospitals — Beaumont, Detroit General, Harper, Hutzel, Providence, St. John's and Sinai. Seminars and research opportunities related to human reproduction, oncology, and gynecologic endocrinology are available during the clerkship and the senior elective period. An extensive research program in reproductive biology is in progress. This effort is multidisciplinary and also involves the Departments of Anatomy, Biochemistry and Microbiology. Summer student research fellowships are available at the C. S. Mott Center for Human Growth and Development where our laboratories are located. Three new subsidiary Specialty Boards in gynecology and obstetrics are: gynecological oncology, maternal and fetal medicine, and gynecological endocrinology.

IMMUNOLOGY AND MICROBIOLOGY

Office: 7374 Scott Hall

Chairman: Noel R. Rose

Associate Chairman: V. Fay Righthand

PROFESSORS

Richard S. Berk, Charles D. Jeffries, Myron A. Leon, Noel R. Rose, Fred L. Rights (Emeritus), Cyril S. Stulberg, Lawrence M. Weiner, Marvin A. Rich

ADJUNCT PROFESSOR

M. David Poulik

ASSOCIATE PROFESSORS

Dov L. Boros, William J. Brown, Yi-chi M. Kong, Seymour Levine, Robert L. Millette, Helene C. Rauch, V. Fay Righthand, Robert H. Swanborg

ASSISTANT PROFESSORS

Larry D. Bacon, Roger E. Bawdon, Lee Carrick, Jr., Byung-Kil Choe, Heiner Frost, Philip Frost, Lily A. Jones, Roy S. Sundick, Richard L. Rader

ADJUNCT ASSISTANT PROFESSORS

Antonia M. Brem, Thomas P. Conway, Luis A. Estella, Philip Furmanski, Frank Gnabasik, James Greer, Rollin H. Heinzerling, Richard F. Mortensen, Thomas R. Neblett, Robert H. Reid

INSTRUCTORS

Lee Carrick, Jr., Ward D. Peterson

ADJUNCT INSTRUCTOR

Alvaro Giraldo

ASSOCIATES

Flossie Cohen (Pediatrics), Dominic L. DeGiusti (Comparative Medicine), Joseph Kaplan (Pediatrics), James J. Lightbody (Biochemistry), Anthony G. Sacco (Gynecology and Obstetrics), Charles Sterling

In its teaching programs, the Department of Immunology and Microbiology strives to give future physicians a broad understanding of infectious agents and their role in the disease processes, so that rapid laboratory diagnosis can be made and proper therapy instituted. Immune mechanisms and concepts are stressed so that a broad base of knowledge is developed. The aim is to provide a sufficient fundamental understanding of immunology and the various phases of microbiology so that graduates, as practicing physicians, can assimilate and use the contributions continually being made to this basic science discipline.

GRADUATE PROGRAMS

The department offers graduate programs leading to the Master of Science and Doctor of Philosophy degrees in immunology and microbiology in the following specialized areas of study: medical bacteriology, virology, mycology, microbial physiology, microbial genetics, cellular immunology, tumor and transplantation immunology, and immunogenetics.

All questions concerning these programs should be directed to the Director of Graduate Studies, Dr. Robert H. Swanborg.



INTERNAL MEDICINE

Office: 2 Webber Center — Harper Hospital

Chairman: Arnold M. Weissler

PROFESSORS

A. Robert Arnstein, Arnold Axelrod, Michael Brennan, Muir Clapper, Alfred Eichenholz, Don P. Jones, A. Martin Lerner, Benjamin Lewis, Charles Lucas, Robert Mack, Felix Madrid, Franklin McDonald, Lawrence Power, Ananda Prasad, Pritpal Puri, James Schless, Arnold M. Weissler

CLINICAL PROFESSORS

Walter Anderson, Abraham Becker, Grosvenor Bissell, Nathan Brooks, Sidney Friedlaender, Benjamin Juliar, Jack Kaufman, Hyman Mellen, Daniel Myers, Robert Schneck, Nelson Taylor

ASSOCIATE PROFESSORS

Carter Bishop, William Briggs, Erwin L. Burke, Margo Cohen, Gopal Das, Jose Granda, Daniel Hollander, Franklin Hull, Samuel Jacobson, Charles McEwen, Edward Nedwicki, Paul Ruble, Frederick Talmers, Liborio Tranchida, Francis Wilson

CLINICAL ASSOCIATE PROFESSORS

Bernard Bercu, John Bielawski, Richard Connelly, Ralph Cooper, Robert Douglass, Rupert Edwards, I. Donald Fagin, George Fisher, Robert Hamburg, Homer Howes, Henry Kaine, Sander Klein, G. Krishna Kumar, James Lightbody, Paul Mattman, Richard McCaughey, Lloyd Paul, Marjorie Peebles-Meyers, Thomas Petz, William Reveno, Herbert Rosenbaum, Clarence Rupe, Manuel Sklar, Marcus Sugarman, George Thosteson, Freeman Wilner, Clyde Wu

ASSISTANT PROFESSORS

Ali Abbasi, K. M. Anandaiah, Nandalal Bagchi, Edmund Barbour, Raphael Barfi, Kenneth Bergsman, Changiz Bidari, Pravit Cadnapaphornchai, Clement Chu, Lawrence Crane, Ralph Cushing, Sudbir Desai, Burleigh DeTar, Marcia Fowler, Heiner Frost, Philip Frost, Sunilendu Ganguly, Bienvenido Gatmaitan, Subhash Gulati, T. I. M. Zahur Hossain, Samuel Indenbaum, Ashok Karnik, M. Riad Khatib, Vithal Kinhal, Carl Lauter, Ruben Legaspi, Alex Mataverde, Mila Martinez-Mojares, William McDonald, Stephen Migdal, B. F. Muller, Jesus Ortega, Chris Palacas, Milagros Reyes, Melvyn Rubenfire, Edmundo Sagastume, M. Saadi Taher, Waldemar Wajszczuk

CLINICAL ASSISTANT PROFESSORS

Seymour Adelson, Sidney Adler, Donald Albert, Edward Alpert, Richard Anslow, Howard Appelman, Martin Atdjian, Harry Balberor, Matthew Balcerski, Thomas Batchelor, Max Beitman, Gilbert Berman, Ratilal Bhakta, Oscar Bigman, Robert Birk, Robert Black, Herbert Cantor, Douglas Chandler, Raymond Christensen, Alberto Cohen, Robert Cutler, Walter DiGiulio, Howard Dworkin, Reginald Ernst, Michael Federman, Meryl Fenton, Vance Fentress, Michael Freeman, Alexander Friedlaender, Emanuel Frisch, Gilbert Galens,

James Gallagher, Eugene Gelzayd, Robert Gerisch, William Gibson, Donovan Givens, Herbert Goldstein, John Graham, Abraham Grant, Julius Greenberg, Henry Green, Robert Griffin, Meyer Gutterman, James Hallen, Harcourt Harris, Michael Harris, Fred Henderson, Hugh Henderson, Raymond Henkin, Glen Hiller, David Jacobs, George Kadian, Sheldon Kantor, Sherman Kay, Arthur Klass, Alfred Klein, Herman Klein, Michael Kozonis, Walter Kujawski, Kamallesh Lahiri, Robert Leach, Lyla Leipzig, Herbert Levin, Stephen Levy, Berton London, Gerald Loomus, Ivan Mader, Robert Malone, Leslie Mandel, Walter Martin, Thomas McBryan, William McIntyre, George McKeever, Donald Meier, Harry Meisner, Leonard Melander, William Morse, John Moynihan, Hector Mulero, Kenneth Newton, David Nolan, Donald Overy, Louis Pollens, Sidney Prystowsky, Nicholas Radoiu, Abner Ragins, Mohammed Razzaque, Joseph Rinaldo, Arthur Rose, Everett Rottenberg, Milton Rueger, Richard Ruel, Hershel Sandberg, John Schneider, Leonard Schreier, Howard Shapiro, Jack Shartsis, Clayton Shors, Richard Sills, William Sills, Andrew Smith, Alex Solter, Thomas Stock, Sheldon Stoffer, John Stone, Edward Tallant, Myer Teitelbaum, Leon Thomas, Rachel Turner, Donald Visscher, Ignatio Voudoukis, Floyd Walter, Irving Warren, Richard Wetzel, Steven Widlansky, Andrew Wilson, Stanley Wolfe, Jose Yancz, Irving Young, Edward Zaleski, Walter Zimmerman, Eldred Zobl

INSTRUCTORS

Hassan Amjad, Patricia Ball, Oswald Bostic, Carl Liapcheff, Sudesh Mahajan, Andre Pugel, Sarala Ravikant, Lazarus Reed, Ismael Romero, Ila Shah-Reddy, Young Ho Sohn, Tariq Siddiqui, Khachorndej Vibhasiri, Paul Wenig, John Zuzga

CLINICAL INSTRUCTORS

Roderic Abbott, Elsa Alcantara, Robert Barron, Sidney Baskin, Thomas Billingslea, Horace Bradfield, James Brown, John Bryan, John Burger, Samuel Castillo, Allan Chernick, Robert Cubberley, William Curtiss, Allan Dobzyniak, Charles Ebner, Eldon Erickson, Charles Ewing, Gregorio Ferrer, Pedro Franco, Herbert Friedman, Sherwood Friedman, Richard Gause, James Gilreath, Harold Ginsberg, Howard Goldberg, Michael Grishkoff, Benjamin Gutow, Ihsan Haq, Geraldine Hardy, Allison Henderson, Herbert Hiller, Archie Hulick, M. Colton Hutchins, Fikry Ibrahim, David Itkin, Edwin Kerr, Karl Kessel, James Kennary, Kyung Soo Kim, Joyce Kingsley, Arsenia Koh-Guevarra, Herman Koschnitzke, Cheng-Chong Lee, Hahn Lee, Murray Levin, Nathan Levitt, Leonard Linkner, Walter Livingston, Reuben Lopatin, Richard Lubera, Luis Maas, Gholamali Malekheadayat, Lawrence McNichol, Leon Morris, John Moses, Ian Murray, Warren Nesbit, Katheryn O'Connor, Bernard Rapoport, William Reidt, George Ritter, Harold Rodner, Herbert Rossin, Mitchell Salhaney, Michael Salib, Sidney Schechter, Stephen Senecoff, Eugene Shafarman, Herschel Shulman, Allen Soble, Freddy Sosa, Albert Steinbach, Eugene Steinberger, Milton Steinhardt, Gerald Stronski, Komol Surakomol, D. A. Tarpinian, Theodore Todoroff, †William Weaver, B. David Wilson, David J. Young

The major objective of the educational program in internal medicine is to indoctrinate our students in the fundamental principles of clinical diagnosis and management. The exposure to clinical disciplines is graduated throughout the student's four year curriculum. During the early medical school years emphasis is placed on the application of knowledge gained in the basic science courses to an understanding of the biologic disorders which accompany human disease. In the freshman year, the student meets the Department of Internal Medicine through participation in several clinical correlative conferences. During the sophomore year, the course Introduction to Medicine is directed toward the study of pathophysiologic mechanisms of disease, the principles of clinical diagnosis and the scientific basis of therapeutics. In the junior and senior years emphasis is placed on the student's direct participation in patient care as a member of the health-care team. In the junior year the student gains clinical experience through assignment to the wards of the Wayne State University teaching hospitals. This insures exposure to several members of the faculty and to a wide spectrum of medical problems. During the senior year, the student is offered a variety of elective courses for study in general internal medicine or its subspecialties and may choose to pursue laboratory investigative programs under the tutelage of members of the faculty. In addition to formal course work, the student may elect more intensive study as a student-fellow in either clinical or laboratory medicine during the summer recesses.

† Deceased

NEUROLOGY

Office: 589 Harper Hospital

Chairman: John Gilroy

PROFESSORS

Raymond B. Bauer, John A. Churchill, John Gilroy, George Lynn, Robert Maulsby, Foster K. Redding, Ernst A. Rodin

ASSOCIATE PROFESSORS

John T. McHenry, Melvin L. Schwartz

ASSISTANT PROFESSORS

Bernard Bast, Joyce Benjamins, Jay Gorell, James E. Gotham, M. Zafar Mahmud

CLINICAL ASSISTANT PROFESSORS

Stephen Bohn, Joseph H. Chandler, J. Ulysses DeSousa, Abe S. Goldstein, Reginald Harnett, Jasper McLaurin, Carlos M. Perez-Borja, Louis E. Rentz, Sheila Sheehan

INSTRUCTORS

Lourdes V. Andaya, George Ristow, Robert Schwyn

CLINICAL INSTRUCTORS

Jacob Danial, John A. Hughes, Winston B. Jackson, Demetrios L. Kikas, David Lustig, Kathryn McMorror, Michael A. Nigro, Andre Pugel, Choon Soo Rim, Norman Wechsler

ASSOCIATES

Marion I. Barnhart (Physiology), David Benjamins (Neurology and Pediatrics), Ramon Berguer (General Surgery), Jacob L. Chason (Pathology), Morris Goodman (Anatomy), Zwi Hart (Pediatrics), Joseph N. Schaeffer (Physical Medicine and Rehabilitation), Harvey I. Wilner (Radiology)

The Department of Neurology participates in the teaching of medical students in all of the years of the medical curriculum. Clinical demonstrations of common neurological abnormalities are given to students as an integral part of the neurosciences curriculum in the first year. In the second year, the neurology program has been expanded to take a major part in the neurosciences curriculum with both lectures and demonstrations on major neurological topics. During the third year, students rotate through the Neurology Units at either Harper Hospital or Detroit General Hospital for a period of two weeks. During this time, they receive bedside teaching on the clinical examination of patients, they are given a certain amount of responsibility in the presentation of cases to staff individually and in conference, and they are given every opportunity to learn the basics of clinical neurology. The fourth year program is entirely elective and programs for eight or twelve weeks are offered to interested students. Students who elect to serve on either of the two neurology units are given more responsibility in terms of patient care and in the evaluation and presentation of cases to the staff.

The Department of Neurology is now able to offer residencies to medical students graduating from the fourth year at Wayne State University or at other universities without an internship and the residency program has been modified to accommodate those recruited directly from medical school.

Research fellowships for medical students are available for students in third and fourth years. They are of two types: a short summer research program during which the student works on one of the two neurology units for a period of six to eight weeks. The second type of fellowship is usually given to students who show interest in research on a neurological topic and this is conducted during the student's spare time in his third and fourth year over the whole of the academic year. It can be continued into a summer research program. Interested students are encouraged to make application to the Department of Neurology for these fellowships.



NEUROSURGERY

Office: 116 Medical Research Building

Chairman: L. Murray Thomas

PROFESSORS

E. S. Gurdjian (Emeritus), L. Murray Thomas

CLINICAL PROFESSORS

H. Harvey Gass, Aage E. Nielson

ASSOCIATE PROFESSORS

William R. Darmody, Voight R. Hodgson

CLINICAL ASSOCIATE PROFESSOR

Philip J. Huber

ASSISTANT PROFESSORS

Blaise U. Audet, Arthur B. Eisenbrey, Gerald A. Moore

CLINICAL ASSISTANT PROFESSORS

Warren G. Hardy, David W. Lindner, John F. McGuire,
Arthur Z. Ostrowski, Harold D. Portnoy

INSTRUCTOR

Matthew W. Mason

CLINICAL INSTRUCTOR

Paul D. Croissant

ASSOCIATES

Albert I. King, Harvey I. Wilner (Radiology)

The Department of Neurosurgery has the goal of acquainting the undergraduate medical student with the problems, both diagnostic and therapeutic, in the field of neurosurgery. This is accomplished by close affiliation with and participation in the neurosciences core curriculum of the freshman and sophomore years. Lectures, conferences, and ward rounds are included in this teaching program. Neurosurgery participates in the third-year neurology teaching program with specific emphasis in the surgical aspects of neurology. Third year students are made aware of problems best handled by neurosurgical techniques during their trauma and emergency surgery rotation. Fourth-year students seeking more information about neurosurgical techniques may avail themselves of elective programs in clinical neurosurgery and in experimental head injury. Detroit General Hospital is the primary teaching hospital for the undergraduate program in neurosurgery. A residency training program in neurosurgery of five years is conducted by the department and based at the following University affiliated hospitals: Harper-Grace Hospitals and Detroit General Hospital. The research interests of the department are concentrated primarily in the mechanisms of and protection against head injury. The Gurdjian-Lissner Biomechanics Laboratory is a function of the Department of Neurosurgery.

OCCUPATIONAL AND ENVIRONMENTAL HEALTH

Office: 101 Environmental Health Laboratory

PROFESSOR

Andrew L. Reeves

ASSOCIATE PROFESSOR

Harry L. Berke

Part-Time Faculty

ASSOCIATE PROFESSOR

David C. Nolan

ASSISTANT PROFESSORS

Edward J. Kerfoot, Peter O. Warner

The Department of Occupational and Environmental Health is concerned with the training of physicians and members of the environmental sciences to understand and cope with those physical and chemical factors capable of inducing stress or damage to health in a complex industrial and urban environment. If occupational disease is to be effectively detected, managed, and controlled, critical insights must be made about new materials and processes, the expanding use of industrial substances, and the circumstances under which men work. The prevalence of specific disease entities, induced or aggravated by occupational situations, and the need for preventive measures to control disease within industry have fostered the development of occupational health as a specialty. Currently there are two specialty boards, one for industrial hygiene and the other for occupational medicine.

The major aims of the Department of Occupational and Environmental Health are to contribute, through research, training, and teaching, to the continued development and expansion of these interrelated scientific fields. Another aim is to give service to management and labor, in order to assure the maintenance of optimum health conditions for the working man.

RESEARCH PROGRAMS

The research program in the department focuses on the interrelationship between man and his occupational and non-occupational environments. Accordingly, active programs investigate the impact of certain toxic substances on various components of the body, including the cardiorespiratory, dermatologic, excretory, and neurologic. Psychiatry and psychology are other areas being integrated with the general field of occupational health.

ONCOLOGY

Office: 14B Grace Hospital

Chairman: Vainutis K. Vaitkevicius

PROFESSORS

Jerome P. Horwitz, David Kessel, William L. Simpson, Vainutis K. Vaitkevicius

ASSOCIATE PROFESSORS

Muhyi Al-Sarraf, Laurence H. Baker, Melvin L. Reed, Amnuay Singhakowinta, Jiri Zemlicka

ASSISTANT PROFESSORS

Magid H. Amer, Thomas Buroker, T. H. Chou, Juan J. Correa, Ronald Izbicki, Prem Khilanani, Pavel L. Lomen, Bohumil Samal, Michael Samson, Abul K. Shamsuddin

CLINICAL ASSISTANT PROFESSORS

John H. Burrows, Eulogio Caoili, Jr., Ramesh Mohindra, Edward Moorehead, Clarence B. Vaughn

INSTRUCTOR

Maria Sexon-Porte

CLINICAL INSTRUCTORS

Guillermo Betanzos, Ernesto Briones, Eudoro Coello, Jee U. Lim, Pradcep Shah, Benjamin Wailes

With the increasing effectiveness of cancer chemotherapy, the School of Medicine is providing daily care to some 125 in-patients with advanced neoplastic disease. The Department of Oncology is responsible for the care of these patients who are primarily housed at Harper-Grace Hospitals where it conducts research in natural history, hormonal immunotherapy and chemotherapy of cancer. The members of the Department of Oncology participate in all teaching programs as they relate to cancer throughout the Medical School curriculum. Medical interns and residents as well as medical students rotate through this service (several elective programs are being offered). Ten two-year fellowships in clinical oncology are filled with internists who are preparing for certification in the subspecialty of Medical Oncology by the American Board of Internal Medicine.

OPHTHALMOLOGY

Office: 101 Kresge Eye Institute

Chairman: Robert S. Jampel

PROFESSORS

Edward S. Essner, Clifford V. Harding, Jr., Robert S. Jampel

CLINICAL PROFESSORS

Edmond L. Cooper, Maurice Croll, Windsor S. Davies, V. Everett Kinsey, Cecil W. Lepard, H. Saul Sugar

ASSOCIATE PROFESSORS

Robert N. Frank, Irene E. Loewenfeld

CLINICAL ASSOCIATE PROFESSORS

David Barsky, Hugh Beckman, Robert J. Crossen, Conrad L. Giles, V. N. Reddy, Albert D. Ruedemann, Jr., Lawrence L. Stocker, Thomas G. Varbedian, Michael A. Wainstock

ASSISTANT PROFESSORS

John W. Cowden, Harold Weiss

CLINICAL ASSISTANT PROFESSORS

William C. Albert, Oscar A. Brown, John P. Clune, Gerald T. Davies, Jerome Davis, James L. Frey, Jo D. Isaacson, Fritz Jardon, Leonard H. Lerner, Lester E. McCullough, Robert J. McDonald, Thomas R. McKenzie, Delbert P. Nachazel, Sheldon D. Stern, Sidney L. Stone, Floyd S. Tukel, James E. Watson

INSTRUCTORS

Oswaldo J. Caffa, Albert W. Kirby, Arlene E. Stearns

CLINICAL INSTRUCTORS

Daniel R. Barr, Michael H. Bialik, Frederick W. Bryant, Jaap B. Delevie, Lawrence B. Edelman, Gomer P. Evans, Gordon R. A. Fishman, Terry A. Fuller, Thomas H. Galantowicz, Robert I. Gans, Stanley C. Grandon, Maurice A. Hall, Joseph A. Lioli, Raymond R. Margherio, Frank R. Markey, James R. Marshall, Jr., Marion G. McCall, Alan M. Mindlin, Morris J. Mintz, Frank J. Moran, Robert J. Netzel, Hanna Obertynski, James A. Olson, M. Hanif Peracha, William T. Sallec, Herbert D. Sherbin, Patrick Villani, Noel A. vonGlahn, William A. Willoughby, Norman Zucker

The undergraduate program in ophthalmology consists of several hours of lecture with laboratory associated with the Department of Physiology. Several lecture hours are also given in anatomy class and physical diagnosis. In the third year, five days are spent on the eye service under the supervision of the staff and residents. Electives are available during the fourth year.

ORTHOPEDIC SURGERY

Office: 472 Detroit General Hospital

Chairman: Herbert E. Pedersen

PROFESSOR

Herbert E. Pedersen

CLINICAL PROFESSORS

A. Jackson Day, Frederick J. Fischer

ASSOCIATE PROFESSOR

Richard L. LaMont

CLINICAL ASSOCIATE PROFESSORS

Maxwell B. Bardenstein, William H. Blodgett, Maurice E. Castle, James J. Horvath, Loyal W. Jodar, John M. Pandy, Richard D. Young.

ASSISTANT PROFESSORS

Bala S. Prasad, L. James Roy, James R. Ryan, Gino G. Saliccioli

CLINICAL ASSISTANT PROFESSORS

Milton M. Green, John Griz, Richard H. Hall, Eugene D. Horrell, G. Richard Jones, Bernard Krakauer, Peter Palmer, William H. Salot, William E. Siebert

INSTRUCTORS

Gheorghe Corondan, Walter L. Everett, Jr.

CLINICAL INSTRUCTORS

James J. Faremouth, William R. Fulgenzi, Michael J. Geoghegan, Wallace E. Johnson, Shin-Young Kang, Stuart A. Katz, Joseph J. LaHood, Robert S. Levine, John M. McCollough, Lawrence G. Morawa, George V. Pandy, Leonard M. Pickering, Guy P. Pierret, Carl E. Reichert, Jr., L. Carl Samberg, Daniel E. Schechter, Thomas J. Setter, Joseph Shurmur, James C. Zurawski

The undergraduate orthopedic teaching program is an integrated program designed to introduce the medical student to the entire field of musculoskeletal diseases and injuries. By means of demonstrations, lectures, conferences, clinics, and clerkships, the student will learn the important specifics of the orthopedic examination and will be exposed to many groups of musculoskeletal problems on trauma, adult, and children's services. In the process of providing specific knowledge concerning common problems in each field the emphasis is on general principles of diagnosis and management.

OTOLARYNGOLOGY

Office: Farwell Annex, Detroit General Hospital

Acting Chairman: Philip M. Binns

CLINICAL PROFESSORS

G. Jan Beekhuis, I. Jerome Hauser, Lyle G. Waggoner

ASSOCIATE PROFESSOR

Philip M. Binns

CLINICAL ASSOCIATE PROFESSORS

Ned I. Chalut, James E. Coyle, T. Manford McGee, Bruce Proctor

ASSISTANT PROFESSORS

Marcelo B. Espiritu, Alasdair G. Gilchrist

CLINICAL ASSISTANT PROFESSORS

Paul J. Dzul, John W. Grigg, Royal C. Hayden, Edward B. Harrington, James McKenna, James T. Mimura, Richard R. Royer, Miles Taylor, Martin B. Trotsky, George J. Viscomi, Dieter Wendling

INSTRUCTORS

M. A. E. El-Gothamy, Alberto T. Manahan

CLINICAL INSTRUCTORS

Paul W. Babcock, Donald L. Baltz, Walter M. Belenky, John A. Fushman, H. John Jacob, James K. Johnson, Slobodan D. Megler, Michael S. Menge, William J. Rice, Wilfred A. Riddell, Michael E. Rollins

The undergraduate teaching program of the Department of Otolaryngology is designed to acquaint the student with all diseases treated by the modern otolaryngologist. Instruction is given in the methods of examining the ear, nose and throat in the outpatient department. Audiology is included so that the student may properly classify deafness in selecting the indicated therapy.

Head and neck, and plastic and reconstructive surgery as related to otolaryngology are included in the instruction period. Observation and, at times, assistance at surgical operations offer additional interest to students. The program of teaching stresses the correlation of ear, nose and throat to general medicine and surgery.

PATHOLOGY

Office: 9374 Scott Hall

Chairman: Jacob L. Chasson

PROFESSORS

Jacob L. Chason, Robert D. Coyle, George J. Kaldore, Eberhard F. Mammen, Hermann Pinkus, Edward R. Powsner, Julius Rutzky, Roger J. Thibert, Bennie Zak

CLINICAL PROFESSORS

Rosel L. Mainwaring, John W. Rebeck, Barbara F. Rosenberg, Julius Rutzky

ASSOCIATE PROFESSORS

Earnest Booth, A. Joseph Brough, Andrew R. W. Climie, Barbara J. Jenkins, Margarita Palutke, Waldemar A. Palutke, Eugene V. Perrin, Henry E. Puro, Jeanne M. Riddle, Werner U. Spitz

CLINICAL ASSOCIATE PROFESSORS

John F. Fennessey, Norman H. Horwitz, James Humes, Sidney D. Kobernick, James W. Landers, John D. Langston, Herman J. Linn, Joseph R. Monforte, Walter A. Stryker, Frederick W. Wetherimer

ASSISTANT PROFESSORS

Molly Tan Hayden, Khang-Loon Ho, Karel Kithier, Carolyn Feldkamp, Thomas Knechtges, John Lucas, Roderick P. MacDonald, Song Hai Nam, Sharon Noonan, Myung Sook Pak, John T. Piligian, Nikolai Rachmaninoff, Chandra Varadachari, Robert W. Weise, Robert F. Wylin

CLINICAL ASSISTANT PROFESSORS

Eugene S. Baginski, Jacob E. Briski, Donald R. Brock, Saul Brown, Robert C. Dickenman, Thomas F. Dutcher, Emanuel Epstein, Marie N. Fly, Lawrence Gardner, Paul A. Goodman, Carl M. Hasegawa, Edward T. Konno, Herbert I. Krickstein, Noel S. Lawson, Aaron Lupovitch, Gerald Mandell, Kenneth R. Meyer, Lawrence E. Nathan, Joseph T. Powaser, James A. Rising, Thomas O. Robbins, Alexander N. Rota, Boris Silberberg, Alexander Ullman, Frank B. Walker, Richard K. Wesley, Richard M. Zirkin

INSTRUCTORS

William J. DiBattista, Alina M. Domanowski, Karni Frank, Jai Young Lee, John C. Widman

CLINICAL INSTRUCTORS

A. Amir Al Saadi, Billy Ben Baumann, Harilal D. Buddhdev, Adrian J. Christie, George A. Fischer, Barry R. Herschman, Mujtaba Husain, Leighton Nyuk Kong, John H. Libcke, Nasr Schnuda, Augustine Torris, Kum-Jung Youn

ASSOCIATES

A. Martin Lerner (Internal Medicine), Merlin E. Ekstrom

The Department of Pathology offers courses during the second, third, and fourth years of medical school. In the second year, a full year's course is given in anatomic pathology in which the student is taught the basic abnormalities as they present themselves in gross and microscopic lesions. No attempt is made to present the finer details of gross and microscopic pathology at this level. The students are encouraged to obtain the general principles of pathologic processes, in order that they may correlate these lessons with their work during the clinical years. The general principals of clinical pathology (laboratory medicine) are also taught during the second year. This section of pathology has been completely integrated with anatomic pathology in order that structure and function can be properly considered as a single unit. During this work, emphasis is placed on hematology and blood banking. Specific details of surgical pathology are given to the third-year students during their surgical clerkship. During the fourth year, students wishing to obtain broader concepts of anatomic and clinical pathology are encouraged to engage in studies with various members of the department.

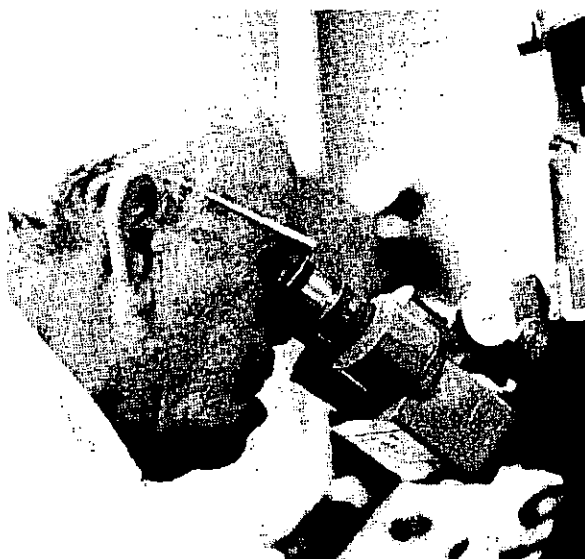
GRADUATE PROGRAMS

The Department of Pathology offers a program leading to the degree of Master of Science.

Admission — Applicants for graduate work in pathology must be graduates of an approved school of medicine. They must also be accepted for residency in the Wayne State University Affiliated Hospitals Residency Program in Pathology.

Candidacy must be established by the time eighteen credits have been earned.

Degree Requirements — Forty-five credits are required. At least half of the course work and the thesis must be in the major. Students are expected to take six credits in minor or cognate fields. A course in statistics or medical statistics is recommended. A final oral examination and thesis are required of all students.



PEDIATRICS

Office: 3B59 Children's Hospital

Chairman: Sanford N. Cohen

PROFESSORS

Flossie Cohen, Sanford N. Cohen, Adnan Dajani, Alan Done, Edward Green, William Gronemeyer, Ingeborg Krieger, Jeanne Lusher, George Polgar, Charles Whitten, Paul V. Woolley

CLINICAL PROFESSORS

Samuel Bernstein, Samuel Levin

ASSOCIATE PROFESSORS

Ralph Cash, Harold Chen, David Faigenbaum, Larry Fleischmann, Robert Gregg, Zwi Hart, Louis Heideman, Marilyn Heins, Joseph Kaplan, Enrique Ostrea, Leslie Pensler, Jane Perrin, Ronald Poland, Thomas Shope, William Rush, Harold Weiss, Frank T. R. Weng

CLINICAL ASSOCIATE PROFESSORS

E. Bryce Alpern, Bernard Bernbaum (Emeritus), Natalia Tanner, Arthur Thompson

ASSISTANT PROFESSORS

Edgardo Arcinue, Regine Aronow, David Benjamins, Anil Bidani, Robert Bollinger, Jan Cejka, Barbara Cushing, Peter Ecklund, Michael Facktor, Zia Farooki, Michael Foulds, William Hoffman, Susumu Inoue, Charles Jennings, Josef Kobujak, Joseph Miceli, Yaddanapudi Ravindranath, Steven Spector, Leon Strebel, Nestor Truccone, Rosalyn Weintraub

CLINICAL ASSISTANT PROFESSORS

Bassam Bashour, George Blum, Avinash Chawla, James Collins, Douglas Cox, Max Garber, Seymour Gordon, John Harm, Louis Heyman, William Howard, Thaddeus Joos, Ruben Kurnetz, Frederick Margolis, William Montgomery, Samuel Nichamin, Helen Nutting, John Pollack, Irving Posner, Ali Rabbani, Richard Ryszewsky, Allen Sosin, Gerald Timmis, Seetha Uthappa

INSTRUCTORS

Noreen O'Brien Brohl, Cleofe Chavez, Jay Eastman, Cheryl Kerns, Ann Lublin, Mubariz Naqvi, Rukmani Raghunathan, Ashok Sarniak, Jane Savoy, Seetha Shankaran, M. C. Thirumoorathi, Michael Tyrkus

CLINICAL INSTRUCTORS

John Birmingham, E. Dalton Black, Marshall Blondy, Jurin Boriboon, Sheldon Brenner, John Bruno, Robert Burge, Irving Burton, Barbara Chapper, Wyman Cole, Robert Cooper, Eugene Crawley, Margaret Dietze, Norma Espiritu, Nathan Firestone, Carl Gagliardi, William Gatfield, Phillip Jackson, Jamil Kheder, Sajid Maqbool, Irving Miller, Abdul Mirza, Wallace Nichols, Pauline Pevin, Joseph Rivkin, Robert Rooney, Mark Roth, William Rubinoff, Alicia Sandoval, Hadi Sawaf, Robert Scherer, Marrison Scott, Warren Sheldon,

Stanford Singer, Donald Steepe, Harvey Stein, Karl Stillwater, Harold Wagenberg, Allan C. Weiner, Paul Williams, Edward Winbaum, Petronio Yadao, Paul Zavell, Robert Zink

ASSOCIATES

A. Joseph Brough (Pathology), Joseph Fischhoff (Psychiatry), Jack Hertzler (Surgery), Charles Inniss (Community and Family Medicine), Michael Nigro (Neurology), Alan Perlmutter (Urology), Eugene Perrin (Pathology), Arvin Philippart (Surgery), M. David Poulik (Immunology and Microbiology), Joseph Reed (Radiology), Julius Rutzky (Pathology), Thomas Slovis (Radiology)

Formal teaching in the Department of Pediatrics takes place during the third year and is conducted on the wards and in the clinics of the Children's Hospital of Michigan. The aim of this clerkship is to acquaint the students with the course of normal development, the common variations from this pattern, and the reaction of the immature to illness. An effort is made to incorporate all aspects of childhood in the allotted time of study so that full participation by members of the surgical, orthopedic, and psychiatric staff is invited. The technique of pedagogy used is built around the association of students with a principal instructor who chaperones his group both on the wards and in the clinic. Pediatrics maintains contact with the student before and after his clerkship, since members of the department contribute to the curriculum of basic science courses and support a very active elective program during the fourth year.



PHARMACOLOGY

Office: 6374 Scott Hall

Chairman: Bernard H. Marks

PROFESSORS

Gordon F. Anderson, Alan K. Done, Saradindu Dutta, Harold Goodman, David Kessel, Bernard H. Marks

ASSOCIATE PROFESSORS

George E. Dambach, Roy B. McCauley

ASSISTANT PROFESSORS

Mary Ann Marrazzi, Joseph N. Miceli, James W. Putney, Jr., David R. Schneider, Eugene P. Schoener, James A. Thomas

ADJUNCT ASSISTANT PROFESSOR

Joseph R. Monforte

ASSOCIATES

Roy Aston (Anesthesiology), Sanford Cohen (Pediatrics), Jay M. Gorell (Neurology), Andrew L. Reeves (Occupational and Environmental Health), Leon Strebel (Pediatrics)

Pharmacology is the study of the action of chemicals on living systems, ranging in complexity from cells to intact organisms to societies. Research in pharmacology may involve microorganisms, mammals or man, either normal or diseased. The objective of pharmacology is establishment of the scientific basis for the understanding of rational therapeutics, and the identification, selection and use of drugs for the prevention, cure or amelioration of disease.

GRADUATE PROGRAMS

The Department of Pharmacology offers programs leading to the master's degree and to the Doctor of Philosophy degree. In general, it is not recommended that students elect to register for a master's degree program, except under unusual circumstances. A joint Ph.D.-M.D. program is also available.

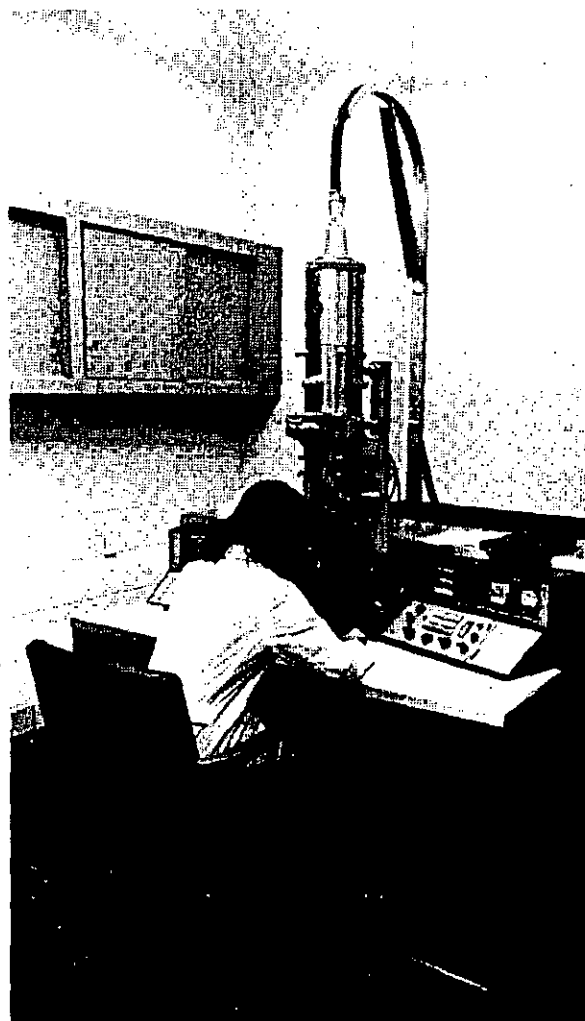
Admission—Students are considered for admission to the graduate program of the Department of Pharmacology if they meet the requirements of the Graduate Division of the University and have a background in one of the chemical or biological sciences. Students with diverse backgrounds will be considered individually if they have special competence related to one of the departmental areas of interest. Applicants are expected to provide scores of the Graduate Record Examination, with an advanced test in either chemistry or biology. Personal interviews are very desirable. Letters of inquiry should be directed to the chairman of the graduate committee of the department.

Degree Requirements—Requirements for students enrolled in graduate degree programs are described in the Graduate Division section of this bulletin. Students are expected to demonstrate their understanding of basic biochemistry, physi-

ology and pharmacology in order to pass their general examination for candidacy for the Ph.D. degree. Other courses are arranged to meet the specific needs and interests of each student. These often include biostatistics, neuroanatomy, general pathology, in addition to advanced courses in the major fields of interest. Research in pharmacology to complete requirements for the Ph.D. degree may be selected from the various fields in which special faculty competence is found in this department, including the areas of biochemical pharmacology and toxicology, cardiovascular pharmacology, cellular pharmacology, nerve and muscle pharmacology, and neuroendocrine pharmacology.

Financial Aid

Teaching and research assistantships are available for a limited number of well qualified students. A number of students are supported as trainees in a National Institutes of Health pre-doctoral training program. All students, whether or not they hold a fellowship, are required to perform teaching duties in the medical and paramedical courses as part of their teacher-training activities. Inquiries should be directed to the chairman of the graduate committee of the department.



PHYSICAL MEDICINE AND REHABILITATION

Office: 820 Rehabilitation Institute

Chairman: Leonard F. Bender

PROFESSORS

Leonard F. Bender, Joseph N. Schaeffer

ASSOCIATE PROFESSORS

Frank S. Blumenthal, Harry O. Ingberg, Joseph C. Honet

INSTRUCTORS

Victor J. Nyboer, Corazon D. Catalan, Frank B. Jolley

CLINICAL ASSOCIATE PROFESSOR

Frank Cullis

CLINICAL ASSISTANT PROFESSORS

Alvin M. Brown, Myron M. LaBan

CLINICAL INSTRUCTORS

Joseph F. Guyon, Joseph R. Meerschaert

The Department of Physical Medicine and Rehabilitation provides the student with knowledge of the patient as a person, not only of his disease. The student is taught to assess the neuromuscular and musculoskeletal systems and to manage disorders of these systems. In addition, the student is presented with a concept of rehabilitation which considers not only the disease or injury which leads to chronic disability, but emphasizes the coordination of effective therapies and forces which will ameliorate the social, psychologic, and vocational problems created by the disability.

Teaching is by lecture, demonstration, staff conferences and seminars, with the major emphasis upon office practice teachings. Clinical instruction is provided at the Rehabilitation Institute, the principal teaching facility. In addition, clinical instruction is provided at the following institutions: Harper-Grace Hospitals, Hutzel Hospital, Detroit General Hospital, Sinai Hospital, Beaumont Hospital and Children's Hospital.

PHYSIOLOGY

Office: 5374 Scott Hall

Chairman: Walter H. Seegers

PROFESSORS

Marion I. Barnhart, Piero P. Foa, Richard R. Gala, Raymond L. Henry, Eberhard F. Mammen, Walter H. Seegers, Robert S. Shepard

ADJUNCT PROFESSOR

Robert M. Nalbandian

ASSOCIATE PROFESSORS

Paul C. Churchill, Ricardo H. Landaburu, Lowell E. McCoy, Genesio Murano, James A. Rillema, James A. Sedensky

ADJUNCT ASSOCIATE PROFESSORS

Michael J. Dimino, Jerry R. Reel, Allen Silbergleit, Albert J. Whitty

ASSISTANT PROFESSORS

Charles A. Baechler, Robin A. Barraco, Joseph C. Dunbar, Houria I. Hassouna, David M. Lawson, H. Jay Lyons, Bert Mobley, Daniel A. Walz

ADJUNCT ASSISTANT PROFESSOR

Asgar Shafadeh

ASSOCIATES

Roy Aston (Anesthesiology), Margo P. Cohen (Internal Medicine), E. S. E. Hafez (Gynecology and Obstetrics), Jerry A. Mitchell (Anatomy), George Polgar (Pediatrics), Jerry C. Rosenberg (Surgery), William A. Saville (Health and Physical Education), Kirt J. Vener (Office of Research and Sponsored Programs)

Physiology is the study of bodily function in all of its ramifications, with special emphasis on the characteristics of health and the nature of stress. It aims to respect the concept of individuality in every case in its scientific consideration of the interrelationships, regulation and control of specific organ systems and functions.

GRADUATE PROGRAMS

The Department of Physiology offers programs leading to the Master of Science and Doctor of Philosophy degrees. The Master of Science program is recommended for students who already hold the degree of Doctor of Medicine. No duplication of work completed for the Doctor of Medicine degree may be included in the master's degree program. If a student who holds the Doctor of Medicine degree wishes to

continue toward the Doctor of Philosophy degree, he is advised to select courses which represent self-development and excellence in some field of science related to his specialty. The preferred areas are physics, chemistry, mathematics, bacteriology, and anatomy.

Students planning a career in teaching or research in physiology who have not earned the degree of Doctor of Medicine, are advised to complete the requirements for the Doctor of Philosophy degree. For these students the degree of Master of Science is of limited practical use in that it may not qualify them for a suitable professional position.

Admission—Students must complete requirements for admission as stipulated by the Graduate Division. In addition, applicants for the Doctor of Philosophy degree are expected to have a personal interview with the chairman of the department.

Degree requirements—The over-all requirements for the Master of Science and Doctor of Philosophy degrees are set forth in the Graduate Division section of this bulletin.

Candidates for the Master of Science degree are expected to prepare theses of excellent quality. It is assumed that they will use the excellent facilities available for creative work in an effective, scholarly manner. Theses must be judged suitable for publication in one of the current scientific journals. This latter requirement may, in exceptional cases, be waived by the chairman of the department.

Financial Aid

The department has teaching assistantships and research fellowships available for a number of qualified students. All students accepted into the program are considered for financial assistance and no application forms are necessary for this purpose. Students presenting outstanding records are considered for Charles B. DeVlieg Foundation fellowships. Students on assistantships are advised to elect no more than twelve credits in a given quarter. All students, whether or not they hold a fellowship, are required to perform teaching duties in the medical and paramedical courses as part of their teacher-training activities. For more complete information on fellowships, students should consult or write to the Graduate Officer, Department of Physiology, Wayne State University School of Medicine, Gordon H. Scott Hall of Basic Medical Sciences, 540 East Canfield, Detroit, Michigan 48201.

PSYCHIATRY

Office: 1425 B Lafayette Clinic

Chairman: Garfield Tourney

PROFESSORS

Joseph Fischhoff, Jacques Gottlieb, William Grier, Norman Rosenzweig, Calvin E. Schorer, Garfield Tourney

PROFESSOR OF BIOCHEMISTRY IN PSYCHIATRY

Charles E. Frohman

PROFESSOR OF PSYCHOBIOLOGY IN PSYCHIATRY

Donald Caldwell

PROFESSOR OF PSYCHOPHARMACOLOGY IN PSYCHIATRY

Edward F. Domino (visiting)

CLINICAL PROFESSORS

Alexander Grinstein, Benjamin Jeffries, Elliot Luby, Peter A. Martin, Thomas A. Petty, Herbert A. Raskin

CLINICAL PROFESSOR OF LAW IN PSYCHIATRY

Samuel I. Shuman

ASSOCIATE PROFESSORS

Bernard Chodorkoff, Leonard Piggott, Clyde B. Simson, Thomas M. Sullivan, Lawrence P. Tourkow, Ronald E. Trunsky

ASSOCIATE PROFESSOR OF BIOPHYSICS IN PSYCHIATRY

Charles R. Harmison

ASSOCIATE PROFESSOR OF PSYCHOLOGY IN PSYCHIATRY

Marvin Hyman

CLINICAL ASSOCIATE PROFESSORS

Benjamin Barenholtz, Victor Bloom, Lawrence A. Cantow, Frank Cellar, Calvin H. Chen, Robert B. Clarke, Bruce Danto, Harold H. Davidson, Abraham Elson, James H. Graves, Sol C. Grossman, Sidney B. Jenkins, Viggo W. Jensen, Joseph E. Lenzo, Channing T. Lipson, Frank Parcells, Carol E. Pearson, Kenneth Pitts, Douglas Sargent, Kenneth Schoof, Nathan Segal, Frederick Shevin, Joseph Slusky, Emanuel Tanay, Max Warren

ASSISTANT PROFESSORS

Leon E. A. Berman, Adolfo Brane, Cassius DeFlon, Linda Hryhorczuk, Lawrence E. Jackson, Marvin Margolis, Raymond Mercier, Robert Niccolini, Anthony Pettrilli, John M. Rainey, Harvey Rosen, Ralph Rubenstein, Richard Ruzumma, Donald Silver

ASSISTANT PROFESSOR OF BIOCHEMISTRY IN PSYCHIATRY

Lew M. Hryhorczuk

CLINICAL ASSISTANT PROFESSORS

Charles Barker, Seymour Baxter, Robert C. Behan, Lary R. Berkower, Ronald W. Blatt, Dale Boesky, Melvin Bornstein, Ruth Brackett, Raymond Buck, Alice S. Chester, Jack Dorman, Paul H. Feldman, Lionel Finkelstein, Saul Forman, Max L. Gardner, Kemal Goknar, Walter Guevara, Gerhardt Hein, Louis Hoffman, Calvin H. Hughes, Nathan Kalichman, Cassandra Klyman, Pang L. Man, Ben Marks, Alvin B. Michaels, Morteza Minui, John Moran, K. C. Nair, Milton Palmer, Arthur Pearce, Hyomyeong Rhiew, Ronald Selbat, Marvin Sherman, Antal Solyom, James Sonnega, Marvin Starman, Mayer Subrin, Robert S. Underhill, Habib Vaziri

ADJUNCT ASSISTANT PROFESSORS OF PSYCHOLOGY

Louise Centers, Frank Pearsall

INSTRUCTORS

Romulo Ancog, Xavier Burgoyne, Emmanuel Casenas, Sonia Cruz, George H. Hopson, K. M. Druva Kumar, Jimmie Leleszi, Vellore Nandakumar, Robert Pohl, Vimal Pritpal Puri, Evelio Santiago, Mary Stahly

CLINICAL INSTRUCTORS

Irwin P. Adelson, Jamie Ayala, Rajendra K. Bhama, Savitri Bhama, Raman N. Bhavsar, Lewis Brodsky, James Conger, Joel S. Dreyer, Richard Feldstein, Morris Frumin, Arthur L. Hughett, George Kantzler, Edward L. Klarman, Paul Lessem, Walter G. Levick, Bohdan Maczulski, Edward Missavage, Jr., Philip Parker, Rufus H. Parrish, Anthony Rich, Merlin C. Townley, Odie T. Uddyback

ADJUNCT INSTRUCTOR

Elaine N. Rogan

ASSOCIATES

Jacob L. Chason (Pathology), Shirley I. Dobie (Psychology), John Gilroy (Neurology), Morris Goodman (Anatomy), James L. Grisell (Psychology), Elizabeth Kent (Nursing), Valerie Klinge (Psychology), Ernst A. Rodin (Neurology), Martha K. Rodin (Anatomy), Gerald Rosenbaum (Psychology), Eli Z. Rubin (Psychology)

The educational objective of the teaching program for undergraduate medical students in the Department of Psychiatry is to give the medical student an awareness of psychiatric problems as they are experienced in the practice of medicine, regardless of whether the student plans a general or specialty practice. The student is acquainted with the social, psychodynamic, and biological factors involved in the development of personality and emotional conflicts. He is taught to recognize the importance of the emotional aspects in the doctor-patient relationship. The Department of Psychiatry remains active in the teaching of the medical student throughout his four years of training with the required clinical clerkship occurring in the third year. Experiences in psychiatry occur at a number of hospitals including the Lafayette Clinic, Harper-Grace Hospitals, Sinai Hospital, Hutzel Hospital, Children's Hospital, and the Detroit Psychiatric Institute.

GRADUATE PROGRAMS

The Department of Psychiatry offers a program leading to the degree of Master of Science.

Admission — Applicants must have a Doctor of Medicine degree and preferably have completed one year of internship and at least two years of residency in psychiatry. Students must also meet the requirements for admission to the Graduate Division of the University. Preference will be given to those who have demonstrated interest in, or aptitude for, research and who show potential for an academic career.

Degree Requirements — Course work must include Psychiatry 0700, 0701, and 0702. The main emphasis of the program will be on a personal research project which must be planned and carried through under the guidance of the student's adviser, written up as a thesis, and defended in an oral examination. It is hoped that many students' theses will be of a standard acceptable for publication in a professional journal.

RADIOLOGY

Office: 157 Detroit General Hospital

Chairman: Kenneth L. Krabbenhoft

PROFESSORS

Walter Chavin, Kenneth L. Krabbenhoft, Raymond S. Kurtzman, Gertraud Wollschlaeger, Paul B. Wollschlaeger

CLINICAL PROFESSORS

Joseph O. Reed, Maurice Tatelman, John N. Wolfe

ASSOCIATE PROFESSOR

Shek C. Chen

CLINICAL ASSOCIATE PROFESSORS

Leo S. Figiel, Steven J. Figiel, Jack Handel, E. Frederick Lang, Kenneth D. McGinnis, Donald L. Otto, Harold Perry, Joseph E. Thornhill

ASSISTANT PROFESSORS

Eugene A. Harkaway, Joseph Mantel, F. Carlyle Stebner, William G. Van de Riet

CLINICAL ASSISTANT PROFESSORS

John A. Anderson, Forrest J. Arnoldi, Murray Boles, Philip N. Cascade, Basil Considine, Jr., David P. Corbett, Frederick Cushing, Simon Dolin, Calvin Ervin, George C. Evans, Eugene L. Freitas, Raymond A. Gagliardi, John H. Griffin, Andrew J. Hankins, George A. Kling, Karl T. Kristen, Jwong Jwei Ling, Robert L. Ruskin, Thomas L. Slovis, Robert A. Songe, Frederick B. Watts, Fred K. Wietersen, Harvey I. Wilner

INSTRUCTORS

Ashokkumar J. Desai, Razia Raouf, Esteban J. Saric

CLINICAL INSTRUCTORS

Kyoung-Soo Bae, William Moo-Won Chae, Uvadee Chaibongsai, Bradley J. Cherenzia, John K. Drumm, Marvin Gordon, Daniel R. Guyot, Nicholas Jackiw, Thomas P. James, Myron H. Joyrich, John K. Kelly, Heung Ki Kin, James M. Kuhlman, Vjekoslav Mikelic, Jaroslav Muz, Cynthia Nepjuk, Pijushbhai Patel, Phillip E. Perkins, Alvaro Ramos, Rojanandham Samudrala, Francis P. Shea, Dusik K. Shin, Arthur Shufro, Robert D. Steele, Burt T. Weyhing III, Raymond J. Whiteman, Gangadhar Vaishampayan, Nuromeo O. Vinluan, Alkis P. Zingas

A program of undergraduate teaching is directed toward a total integration of the fundamentals of radiology with the basic sciences, particularly anatomy, physiology, chemistry, and pathology. In the revised curriculum radiologic instruction is correlated at freshmen and sophomore levels with other departments. Junior instruction is clinically oriented and numerous radiologic electives are offered in the senior year. Newer tools available in the field of radiology, such as image amplification fluoroscopy and cineradiography, and radioisotope techniques make possible a better demonstration of anatomic structure and physiologic activity. Computed tomography is the newest technique added to our armamentarium. Techniques involving ultrasonography and thermography are included in both the undergraduate and graduate level of in-

struction. The pre-clinical program has been designed to orient the anatomy student to normal roentgen anatomy and also to relate this to aspects of physical diagnosis. There is further coordination in anatomy and physiology to emphasize function and in turn relate this to aspects of history taking. In the fields of physiology and physiologic chemistry, radioactive isotope techniques are also presented relating particularly to endocrine functions, renal functions, and blood formation. Correlated teaching is also carried out in gross pathology.

In the clinical years, teaching of radiologic diagnoses, radiation therapy, nuclear radiology, ultrasonography and thermography is related to total patient care and such teaching is, therefore, predominantly correlated with other clinical departments. The clinical aspects and applications of radiologic diagnosis, radiation therapy and radioisotopes are taught during clerkships and in the clinics and various inter-departmental conferences.



UROLOGY

Office: 5th Floor, Hutzel Hospital

Chairman: James M. Pierce, Jr.

PROFESSORS

Donald J. Jaffar (Emeritus), Alan D. Perlmutter, James M. Pierce, Jr.

CLINICAL PROFESSOR

Frank B. Bicknell

ASSOCIATE PROFESSOR

J. Edson Pontes

CLINICAL ASSOCIATE PROFESSORS

Harvey Y. Lewis, Edward J. Shumaker

ASSISTANT PROFESSOR

R. Lawrence Kroovand

CLINICAL ASSISTANT PROFESSORS

Benjamin W. Dovitz, Melvin L. Hollowell, Harold V. Morley, Joseph R. Oldford, William H. Rattner, Guy W. Sewell, Bageshwari P. Sinha, Robert C. Thumann, Jr.

INSTRUCTORS

Marshall D. Banks, Anthony J. Thomas

CLINICAL INSTRUCTORS

Albert J. Albrecht, Charles Kessler, Joel Krieger, Murray S. Mahlin, George L. Reno, George R. Sewell, Jr., Jeremy D. Webster

ASSOCIATE

Gordon F. Anderson (Physiology)

The Department of Urology presents to the undergraduate medical student the fundamental concepts of the disease processes involving the urinary tract and the male genital tract in both adults and children. The material is presented in such a way as to emphasize physiological mechanisms and anatomical relationships, and thus to demonstrate the application of the basic science material to the management of clinical problems. The presentation integrates the understanding of the problems of the urinary tract and genital tracts into the over-all problems of the patient and his systematic disease processes. The course material is presented as a group of five lectures integrated into the first and second year of the curriculum. In the junior year, while the students study surgery, a one-week course is given in the basics of urological care. Several senior electives are offered varying from four to eight weeks. There is a urology elective at the Detroit General Hospital and at Hutzel Hospital in the area of adult urinary tract disease consisting of either four or eight weeks. There is a similar elective in children's diseases at the Children's Hospital of Michigan. There is also a urology-nephrology elective at the Children's Hospital. The clinical material available to the student is extremely large and varied. It offers some excellent opportunity for learning the basic principles of disease processes of the urinary tract and the proper examination of patients.

COURSES OF INSTRUCTION¹

Anatomy (ANA)

0310. Human Anatomy (IHS 0310). Cr. 4.

Prereq: BIO 0160. Survey course in gross human anatomy with basic histology and embryology.

0311. (IHS 0311) Human Anatomy Laboratory. Cr. 1.

Prereq. or coreq: ANA 0310. Self-instructional laboratory in human anatomy using human cadaver material.

0320. Anatomy I. Cr. 5.

Open only to students in Allied Health Programs. Prereq: consent of adviser. Dissection and prosection; emphasis on neuromuscular system and functional correlation.

0331. Human Anatomy and Physiology. Cr. 10.

Prere: BIO 0103, elementary high school physics, chemistry or physical science elective. For physical education students. A basic anatomy and physiology course with detailed emphasis on the musculo-skeletal system.

0756. Neuroanatomy. Cr. 4-8.

For anatomy graduate students. Prereq: written consent of instructor.

0757. Cell and Tissue Ultrastructure. Cr. 3.

Prereq: written consent of instructor.

0758. Human Gross Anatomy I. Cr. 6.

Prereq: written consent of instructor and acceptance into a graduate program in the School of Medicine. Lectures and dissection of the upper limbs, back, and head and neck region. Written and practical examinations given for each region, including a final examination.

0759. Human Gross Anatomy II. Cr. 6.

Prereq: ANA 0758; written consent of instructor and acceptance into a graduate program in the School of Medicine. Lectures and dissection of the thorax, abdomen, pelvis and perineum and lower limb. Written and practical examinations given for each region, including a final examination.

0761. Special Dissection. Cr. 1-15.

Prereq: written consent of instructor.

0762. Molecular Biology and Primate Evolution. Cr. 2-4. (Laboratory required for 4 credits).

Prereq: written consent of instructor. Principles of immunology, immunogenetics, and biochemical systematics, and their application to the study of primate evolution.

0763. Experimental Morphology. Cr. 2-6.

For anatomy graduate students. Prereq: written consent of instructor.

0765. Principles of Neuroanatomy. Cr. 3-5.

For non-anatomy majors. Prereq: written consent of instructor. Histology, physiology, development, gross anatomy and functional aspects of the nervous system of man; emphasis on the brain and spinal cord.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

0766. Special Projects in Anatomy. Cr. 1-15.

Prereq: written consent of instructor.

0768. Living Anatomy. Cr. 3-6.

Prereq: written consent of instructor.

0769. Fetal and Neonatal Anatomy. Cr. 3.

Prereq: ANA 0758-0760; written consent of instructor.

0770. Histological and Histochemical Techniques. Cr. 4-6.

Prereq: ANA 0781; written consent of instructor. The preparation of material for microscopic examination.

0771. Human Reproduction. Cr. 2-5.

Prereq: written consent of instructor. Reproductive system macroscopic and microscopic structure, regulation and function during development and in the adult.

0772. Anatomy of the Visual System. Cr. 2-5.

Prereq: written consent of instructor. Basic sciences, such as histology and embryology, as they relate to the visual system.

0774. Human Biology. Cr. 2-5.

Prereq: written consent of instructor. Quantitative human population biology. Current research in normal human biological variation and its causes.

0775. Advanced Neuroanatomy. Cr. 5.

Prereq: ANA 0756 or 0765; written consent of instructor. Detailed study of whole brain sections of the human brain cut in frontal, horizontal and sagittal planes.

0776. Autonomic Nervous System. Cr. 2-5.

Prereq: ANA 0756; written consent of instructor.

0777. Historical Aspects of Anatomy. Cr. 2-5.

Prereq: written consent of instructor. Special topics or eras in the history of gross anatomy, histology, embryology, and neuroanatomy.

0778. Neurophysiology. Cr. 3.

Prereq: written consent of instructor.

0780. Comparative Neuroanatomy. Cr. 2-6.

Prereq: ANA 0756 or 0765; written consent of instructor. Nervous systems of representative vertebrate forms. Brain shifts and modifications occurring throughout phylogeny. Human brain and its position in the evolutionary scale.

0781. Human Microscopic Anatomy. Cr. 5.

Prereq: written consent of instructor. The microscopic structure of tissues and organs.

0782. Human Developmental Anatomy. Cr. 4.

Prereq: ANA 0758 and 0759 or ANA 0781; written consent of instructor. Study of experimental and human embryology; developmental processes, with particular reference to human embryology.

0783. Experimental Embryology. Cr. 2-5.

Prereq: ANA 0782 or equiv.; written consent of instructor. Seminar with laboratory supplementation. Phenomena basic to the process of development; field forces, principles of induction, nuclear-cytoplasmic interactions, the role of cell death in differentiation, the function of cell contacts.

0784. The Fine Structure of the Nervous System. Cr. 3.

Prereq: ANA 0756; written consent of instructor. Comprehensive study of the fine structure of the nervous system with the aid of light and electron microscopic preparations.

0785. Experimental Neuroanatomy. Cr. 3.

Prereq: written consent of instructor. Laboratory examination of the mammalian central nervous system; selected classical and experimental neuroanatomical techniques.

0786. Experimental Neurophysiology. Cr. 1-15 (Max. 15).

Prereq: ANA 0756 or 0765, and 0778 or 0798 or equiv.; written consent of instructor. Advanced studies on the nervous system with emphasis on technical methods. Experiments using various electrophysiological techniques.

0790. Directed Study in Physical Anthropology (ANT 0790). Cr. 2-12.

Prereq: written consent of instructor.

0795. Research. Cr. 1-15.

Prereq: written consent of instructor.

0797. Seminar. Cr. 1-6.

Prereq: written consent of instructor.

0798. Seminar in Neurophysiology. Cr. 1-2.

Prereq: ANA 0756 or 0765 and ANA 0778 or equiv.; written consent of instructor. Electrical and chemical phenomena of neural membrane and synapses.

0800. Special Topics in Anatomy. Cr. 1-15.

Prereq: written consent of instructor. Open only to anatomy graduate students. Directed study.

0899. Master's Thesis Research and Direction. Cr. 1-12 (12 required).

Prereq: written consent of adviser.

0999. Doctoral Dissertation Research and Direction. Credits to be arranged.

Prereq: written consent of doctoral adviser.

Audiology (AUD)

Graduate courses in audiology are listed in the College of Liberal Arts Department of Speech Communication, Theatre and Journalism. See page 427.

Biochemistry (BCH)

0501. General Biochemistry Lectures. Cr. 2.

Prereq: quantitative analysis; organic chemistry; BIO 0271 or equiv. Principles of structural biochemistry, metabolism of nucleic acids and proteins emphasizing the mechanisms of biochemical homeostasis control and their role as a basis of human physiology and pathology.

0502. General Biochemistry Laboratory. Cr. 2.

Prereq: quantitative analysis; organic chemistry; BIO 0271 or equiv. Laboratory experience in the principles of quantitative techniques of biochemical importance for undergraduate and graduate students in medical sciences.

0503. General Biochemistry Lectures. Cr. 2.

Prereq: BCH 0501. Chemistry and metabolism of lipids, carbohydrates and amino acids; regulation of metabolism vitamins.

0504. General Biochemistry Laboratory. Cr. 2.

Prereq: BCH 0503. Glycolysis and incorporation of acetate into lipid, transamination, one-carbon metabolism enzyme induction, metabolism of phosphate.

0505. General Biochemistry Lectures. Cr. 2.

Prereq: BCH 0503. Biochemical principles involved in homeostasis and control of metabolism.

0506. General Biochemistry Laboratory. Cr. 2.

Prereq: BCH 0504. Biochemical analysis of body fluids.

0701. General Biochemistry Lecture. Cr. 3.

Prereq: quantitative analysis, organic chemistry; consent of instructor for part time students. Introduction to biochemistry; first part of a two-quarter graduate level sequence. Cellular components, protein structure, intermediary metabolism, kinetics, and bio-energetics of cellular reactions.

0702. General Biochemistry Laboratory. Cr. 4.

Prereq: quantitative analysis, organic chemistry, BIO 0160 or equiv.

0703. General Biochemistry Lecture. Cr. 3.

Prereq: BCH 0701; consent of instructor for part time students. Second half of a graduate level lecture sequence. Continuation of intermediary metabolism. Structure and function of DNA and RNA. Protein synthesis; molecular mechanisms for control of cellular processes.

0704. General Biochemistry Laboratory. Cr. 4.

Prereq: BCH 0702 or equiv.

0705. Interpretation of Biochemical Data I. Cr. 2.

Prereq. or coreq: BCH 0701. Open only to biochemistry graduate students with consent of instructor. Problem solving approach to biochemistry with special reference to quantitative aspects. Problems will be assigned weekly and participants are expected to make verbal and written reports.

0707. Interpretation of Biochemical Data II. Cr. 2.

Prereq. or coreq: BCH 0701, 0703, 0705. Open only to biochemistry graduate students or by consent of instructor. Continuation of Biochemistry 0705.

0756. Selected Topics in Biochemistry. Cr. 1-10.

Prereq: BCH 0703 and 0704 or equiv. Subject of current importance in biochemistry.

0761. Basic Instrumentation. Cr. 2.

Prereq: college level physics. Basic and practical aspects of biochemical instrumentation including operation and trouble-shooting.

0762. Proteins. Cr. 3.

Prereq: BCH 0701-0704 or equiv. A survey of the chemical structures of some biologically important macromolecules, their physical properties and of the relationships between the two.

0763. Analytical Techniques. (0,12). Cr. 4.

Prereq: BCH 0701-0704 or equiv. Introduction to some of the experimental approaches used in investigations of the relationships between structure and function of biological macromolecules.

0764. Enzymology. Cr. 3.

Prereq: BCH 0701-0704 or equiv., and one course in physical chemistry. Survey of the general principles of enzymology with emphasis on the kinetics of enzyme action.

0766. Bioenergetics. Cr. 3.

Prereq: BCH 0701-0704. Survey of energy-linked biochemical processes in the cell, including interrelationships and control of bioenergetic processes. Current literature cited.

0767. Advanced Biochemistry Laboratory. Cr. 4.

Prereq: BCH 0703, 0704. Advanced laboratory techniques as applied to investigations of biological materials.

0768. Molecular Biological Aspects of Nucleic Acid Biochemistry. Cr. 3 or 5.

Prereq: BCH 0701-0703 or equiv. and consent of instructor. Current concepts of nucleic acid chemistry and biochemistry, protein synthesis and cellular regulatory mechanisms.

0769. Biochemistry of Disease. Cr. 3.

Prereq: BCH 0701-0703 or equiv. and consent of instructor. The relationship of biochemistry to selected medical disorders.

0790. Directed Study. Cr. 1-15 (Max. 15).

Prereq: BCH 0701-0704, consent of instructor and departmental graduate committee. Instruction and laboratory work in advanced analytical and preparative techniques used in biochemistry. Written progress report required each quarter.

0795. Research. Cr. 1-15 (Max. 15).

Prereq: consent of adviser and graduate officer.

0797. Seminar. Cr. 1 (Max. 6).

Prereq: BCH 0703 and 0704 or equiv.

0867. Special Topics in Biochemistry. Cr. 3 (Max. 9).

Prereq: BCH 0703 or equiv. Recent developments. Topics to be announced in *Schedule of Classes*.

0899. Master's Thesis Research and Direction. Cr. 1-12 (12 required).

Prereq: consent of adviser.

0999. Doctoral Dissertation Research and Direction. Credits to be arranged.

Prereq: consent of doctoral adviser.

Comparative Medicine (COM)

0550. Laboratory Animal Science. Cr. 5.

Prereq: BIO 0160, 0220 or consent of instructor. Comprehensive training in laboratory animal science. Designed for the university student or scientist: training in husbandry, handling, reproduction, diseases and use of laboratory animals.

0555. Human Parasitology and Diagnostic Procedures I. Cr. 2.

Prereq: senior or professional status in medical technology, consent of instructor. Credit only upon completion of Comparative Medicine 0556. Discussion and practical consideration of parasitic organisms as disease agents in man, their epidemiology, clinical and pathological consequences and laboratory diagnostic methodology.

0556. Human Parasitology and Diagnostic Procedures II. Cr. 2.
Prereq: COM 0555. Continuation of Comparative Medicine 0555 considering parasites as causative agents of human disease and the laboratory diagnosis of these agents.

0701. Introduction to Animal Experimentation and Use. (2,2). Cr. 3.

Prereq: consent of instructor. Introduction to commonly used laboratory animal species and methods of experimentation and care relative to each, including the history of animal use in biomedical research and teaching.

0702. Principles of Animal Surgery. (3,4). Cr. 5.

Prereq: consent of instructor. Instrumentation and sterile technique, anesthesia, basic surgical technique, demonstration of experimental surgery models, and postoperative care relative to experimental animals.

0703. Diseases of Laboratory Animals. (3,4). Cr. 5.

Prereq: COM 0701, consent of instructor. Diseases of commonly used laboratory animals: mouse, rat, guinea pig, hamster, rabbit, dog and cat. Concerns for prevention and control are developed.

0708. General Comparative Pathology (OEH 0708). (4,0). Cr. 4.

Prereq: basic anatomy, physiology, microbiology, biochemistry or consent of instructor; consent of student adviser for occupational and environmental health students. Introductory pathology including the mechanism of a particular disease and some of the characteristic pathological manifestations associated with that disease.

0709. General Comparative Pathology Laboratory. (0,4). Cr. 2.

Prereq. or coreq: COM 0708. Laboratory techniques in general and experimental pathology. Principles of diagnostic cytology.

0712. Medical Parasitology (I M 0712). Cr. 4.

Open to students in medicine, graduate students in medical technology, biology and basic medical sciences; others by consent of instructor. Prereq: basic background in biology. Discussion and practical study of parasitic organisms as disease agents in man, their epidemiological, clinical and pathological consequences.

0713. Medical Entomology. Cr. 3.

Open to students in medicine, graduate students in medical technology, immunology and microbiology, comparative medicine, and veterinary science; others by consent of instructor. Prereq: basic background in biology. Consideration of the arthropod organisms that cause or transmit disease organisms to man, approached from the standpoint of practical identification and life cycles of arthropods, disease organisms transmitted, and epidemiology of selected arthropod-transmitted diseases.

0714. Helminthology. Cr. 3.

Prereq: BIO 0578 or COM 0712; consent of instructor. Advanced study of morphology, taxonomy and epidemiology of helminth parasites of man and animals.

0715. Fine Structure of Parasitic Animals Cr. .3.

Prereq: BIO 0578, BIO 0513; consent of instructor. Detailed analysis of the fine structural aspects of the major animal parasite groups.

0731. Comparative Pathology. (3,4). Cr. 5.

Prereq: COM 0708 or equiv. Cross-section through spontaneous disease of laboratory animals, including the etiology, pathogenesis, and postmortal gross and microscopic lesions. Comparison to human disease.

0790. Technical Methods in Parasitology. Cr. 3.

Prereq: BIO 0577 or 0578 or COM 0712 or 0713; consent of instructor. Consideration and practice of the modern specialized technology for research, teaching and diagnostic purposes.

0795. Research. Cr. 1-15.

Prereq: consent of adviser. Original investigation in the field of comparative medicine.

0797. Seminar. Cr. 1 (Max. 6).

Prereq: consent of instructor. Presentations by graduate staff, advanced students, and visiting lecturers.

0800. Special Topics in Comparative Medicine. Cr. 1-4.

Open to advanced graduate students, holders of professional degree (M.D. or D.V.M.), graduate professionals in medical technology, or other paramedical professionals. Prereq: consent of instructor. Topics of specialized interest, such as: euthanasia, animal models for experimental study of diseases, special problems in diagnosis of parasitic organisms.

Immunology and Microbiology (I M)

0551. Bacteriology and Immunology. Cr. 6.

Prereq: BIO 0160, CHM 0227. Credit only on satisfactory completion of Immunology and Microbiology 0552.

0552. Pathogenic Fungi and Parasites. (2,6). Cr. 5.

Prereq: I M 0551. Fungi, viruses and parasites in human infections.

0553. Pathogenic Microorganisms. Cr. 4.

Prereq: I M 0552. Advanced diagnostic methods for bacteria, fungi and viruses presented and discussed with conferences and practical demonstrations.

0660. Medical Mycology. (3,6). Cr. 5.

Prereq: I M 0751 or consent of instructor. Fungal diseases of man: ecologic associations, disease and laboratory diagnosis. Isolation and gross and microscopic examination of organisms; application of special tests to identify the fungi.

0712. (COM 0712) Medical Parasitology. (2,6). Cr. 4.

Prereq: basic background in biology. Open to students of medicine, graduate medical technology students, graduate students in biology, basic medical sciences, others by consent of instructor. Discussion and practical study of parasitic organisms as disease agents in man, their epidemiological, clinical and pathological consequences.

0750. Basic Microbiology and Immunology. Cr. 3.

Prereq: organic chemistry. Structure, physiology, metabolism and genetics of fungi, bacteria and viruses. Nature of antigens and antibodies and their interactions, and descriptions of humoral vs. cell-mediated immunity.

0751. Medical Microbiology I. (3,9). Cr. 6.

Credit only on completion of Microbiology 0752. Prereq: I M 0750 or equiv.; consent of department graduate officer.

0752. Medical Microbiology II. (2,6). Cr. 4.

Prereq: I M 0751.

0758. Clinical Microbiology Practice. (10,5). Cr. 3.

Prereq: I M 0551 and 0552 or 0751 and 0752 or equiv. Training and experience in diagnostic microbiology with supervision and practical training in a hospital diagnostic laboratory.

0760. Immunology. (3,0). Cr. 4.
Prereq: I M 0551 or 0752.

0761. Immunology Laboratory. (0,9). Cr. 1.
Prereq: I M 0551, 0752.

0764. Immunopathology. Cr. 2.
Prereq: I M 0760 or written consent of instructor. Study of pathogenic conditions in which the immune system plays a major role. Clinical studies.

0765. Immunochemistry. Cr. 2.
No credit after Biochemistry 0765. Prereq: I M 0760, BCH 0703, or written consent of instructor. Study of immune phenomena at the molecular level; chemical nature of antigens, antibodies and complement; methods of detection; theories on the mechanism of antibody synthesis.

0768. Clinical Immunology. Cr. 4.
Prereq: I M 0760. Maximum two students per quarter. Performance of clinical immunology laboratory studies; visiting of patients with faculty members and discussion of test interpretations.

0770. Virology. Cr. 3.
Prereq: I M 0552, 0752, or equiv.

0771. Virology Laboratory. (0,2 or 6). Cr. 1-3.
Coreq: I M 0770.

0775. Bacterial Metabolism. (2,0). Cr. 2.
Prereq: I M 0551 or 0752; BIO 0720; CHM 0662.

0776. Bacterial Metabolism Laboratory. (0,9). Cr. 3
Prereq: I M 0551 or 0752; BIO 0720; CHM 0662. Basic laboratory techniques in the handling of a variety of enzyme systems.

0780. Microbial Genetics. Cr. 3.
Prereq: BIO 0507, I M 0551, 0752 or consent of instructor. Brief review of Mendelian genetics, meiosis and mitosis. Mechanisms of genetic recombination in bacteria, bacteriophage and molds; the nature of mutation and selected aspects of cellular control mechanisms and DNA replication.

0781. Techniques in Microbial Genetics. (0,9). Cr. 3.
Prereq: BIO 0708 or 0608 or equiv.; prereq. or coreq: I M 0780, or consent of instructor. Selection of mutants of bacteria, bacterial transformation, DNA hybridization, selected use of radioactive isotopes, bacterial recombination; special project.

0791. Recent Advances in Immunology and Microbiology. Cr. 1.
Prereq: written consent of instructor. Seminars in selected areas.

0792. Special Topics. Cr. 1-5.
Prereq: written consent of instructor. Lectures and discussions of current literature and research problems. (Formerly I M 0753.)

0795. Research. Cr. 1-12.
Prereq: consent of adviser and graduate officer.

0797. Seminar. Cr. 1.
Prereq. or coreq: I M 0751.

0899. Master's Thesis Research and Direction. Cr. 1-12 (12 required).
Prereq: consent of adviser.

0999. Doctoral Dissertation Research and Direction.
Credits to be arranged.
Prereq: consent of doctoral adviser.

Occupational and Environmental Health (OEH)

0502. Principles of Industrial Hygiene. Cr. 4.
Prereq: consent of student adviser; consent of instructor for non-degree candidates. Fundamentals of industrial toxicology; evaluation procedures, and engineering control methods; heavy metals, solvents, toxic gases, ionizing radiation, other physical phenomena.

0504. Principles of Urban Environmental Health. Cr. 4.
Prereq: consent of student adviser; consent of instructor for non-degree candidates. Industrial hygiene related to other public health disciplines; sanitation, water supply, and waste disposal; epidemiological techniques applied to industrial hygiene.

0540. Lighting and Non-Ionizing Radiation. Cr. 3.
Prereq: consent of student adviser. The seeing process; requirements for design of work place lighting, lighting surveys, health aspects, evaluation and control of microwave, laser, solar, and ultra-violet radiation.

0550. Environmental Health Planning and Administration. Cr. 2.
Prereq: consent of student adviser. Planning and administration of industrial hygiene, environmental health, air pollution, and other field surveillance and control programs; budget preparation; PERT and Gant systems.

0570. Radiological Health. Cr. 3.
Prereq: consent of student adviser; consent of instructor for non-degree candidates; OEH 0502. Effects, measurement, and control of ionizing radiation in the occupational environment.

0580. Principles of Industrial Noise Control. Cr. 3.
Prereq: consent of student adviser; consent of instructor for non-degree candidates. Fundamentals of sound propagation and measurement; use of sound level meters, frequency analyzers, and audiometric devices; methods of abating sound levels.

0585. Environmental Control of Microbiological Contamination. Cr. 3.
Prereq: consent of student adviser. Evaluation and control of airborne infectious agents, bacteria, viruses, yeasts, molds. Application of special ventilation and air treatment methods; design of operating rooms, laminar flow clean rooms, hoods for pathogenic organisms; sampling airborne bacteria, viruses, and pollens.

0590. Consumer Health Hazard Protection and Toxicology. Cr. 1.
Prereq: consent of student adviser. Organization of poison control centers; consumer protection from foods, food additives, drugs, other consumer commodities.

0602. Aerosol Technology. Cr. 2.
Prereq: consent of student adviser. The physical properties of airborne particulates; gravitational, optical, thermal, electrical; characterization of toxicants in biological systems.

0605. Atmospheric Pollution. Cr. 4.
Prereq: consent of student adviser; consent of instructor for non-degree candidates. Effects of atmospheric pollution on health, property, vegetation; a detailed consideration of the contaminants

responsible for these effects; chemical and physical methods for measuring air pollution; elements of community sampling and stack sampling; methods of abating air pollution at the source.

0610. Occupational Diseases of the Skin. Cr. 4.

Prereq: medical degree; internship and trainee in dermatology. Credit only if working toward master's or doctorate degree. Short-term didactic and field course in the diagnosis, treatment, and prevention of occupational diseases of the skin.

0652. Biology of Populations. Cr. 3.

Prereq: consent of student adviser; previous biology courses recommended. Concepts and principles of population biology applied to problems of population dynamics and control, medical care, the effects of environment on man and other areas of public health fields.

0660. Industrial Hygiene Practice. Cr. 2.

Prereq: consent of student adviser; OEH 0502. Four field visits of approximately two hours each (per quarter) plus written report by students; field visits with industrial hygienists to observe monitoring and control activities with governmental and industrial field persons.

0670. Optical Microscopy for Industrial Hygienists. Cr. 2.

Prereq: consent of student adviser. Expanded study of use of microscope for dust counting and sizing, and for identification of industrial hygiene hazards; use of petrographic, stereo, and phase-contrast microscope.

0708. (COM 0708) General Comparative Pathology. Cr. 4.

Open only to occupational and environmental health students. Prereq: basic courses in physiology and microbiology recommended; consent of instructor; consent of student adviser for occupational and environmental health students. Introductory pathology including the mechanism of a particular disease as well as some of the characteristic pathological manifestations associated with that disease.

0710. Principles of Industrial Toxicology. Cr. 4.

Prereq: consent of student adviser; OEH 0502; consent of instructor for non-degree candidates. Toxicity of industrial chemicals which may be inhaled, absorbed through the skin or ingested; dusts, gases, vapors, most widely encountered; laboratory studies include inhalation experiments, intratracheal, intravenous injections, other modes of introducing toxic substances into animals.

0712. Topics in Advanced Toxicology. Cr. 1.

Prereq: consent of student adviser; OEH 0710. Selected topics in toxicology, student research reports on toxicants of historical and current interest; emphasis on mechanisms of intoxication at the cellular and molecular level.

0716. Fibrogenic Dusts. Cr. 2.

Prereq: consent of student adviser; OEH 0710 or consent of instructor. Survey of the mineral kingdom, especially various forms of silica and silicates, from the viewpoint of their toxicology; the pneumoconioses, their pathogenesis, clinical course, and therapy.

0717. Toxicology of Metals. Cr. 2.

Prereq: consent of student adviser; OEH 0710. The toxicity of metals and their compounds; acute and chronic poisoning in occupational situations; their pathogenesis, clinical course, and therapy.

0718. Toxicology of Organic Compounds. Cr. 2.

Prereq: consent of student adviser; OEH 0710 or consent of in-

structor. Survey of organic chemicals by major compound classes from the viewpoint of their occupational and environmental toxicology (drug toxicity not considered); industrial intermediates, agricultural chemicals, household substances, and their hazards; pesticide poisonings, their pathogenesis, clinical course, and therapy.

0720. Air Sampling and Analysis. Cr. 4.

Prereq: consent of student adviser; OEH 0502; consent of instructor for non-degree candidates. Classical methods of obtaining samples of the air; recent developments in portable direct reading devices; theory underlying the use of impingers, impactors, electrostatic and thermal precipitators, filtration media, and other sampling devices; direct reading instruments; light and dark field dust counting procedures.

0730. Industrial Hygiene Chemistry. Cr. 5.

Prereq: consent of student adviser; OEH 0502; consent of instructor for non-degree candidates. Theory and practice of analyzing air samples, biological specimens, and bulk samples relating to the occupational environment; heavy metals, solvents, toxic gases, significant metabolites occurring in blood or urine; use of spectrophotometric, polarographic, and other instrumental procedures.

0741. Statistical Applications in Industrial Hygiene. Cr. 3.

Prereq: consent of student adviser; OEH 0502; consent of instructor for non-degree candidates. Application of statistical methods to industrial hygiene data obtained during surveys; treatment of large quantities of data obtained in epidemiological studies on in-plant personnel.

0745. Epidemiology. Cr. 3.

Prereq: consent of student adviser. Inter-relationships between host, agent, and environment; biological characteristics of populations; studies of long range effects of environmental and occupational health hazards as related to population sub-groups; examples of occupational and environmental diseases and control methods.

0750. Industrial Hygiene Control Methods. Cr. 3.

Prereq: consent of student adviser; OEH 0502; consent of instructor for non-degree candidates. Control of the industrial environment to prevent occupational illness: use of respiratory protection, substitution procedures, protective clothing, shielding, and isolation to control factors in the environment; laboratory and field visits.

0760. Industrial Hygiene Control Methods — Ventilation. Cr. 4.

Prereq: consent of student adviser; consent of instructor for non-degree candidates. Principles of air movement; their application to design of industrial ventilation systems; air measuring devices, duct and hood design, dust collector performance, fan selection; typical industrial problems, including foundry operations, paint spraying.

0761. Advanced Ventilation. Cr. 3.

Prereq: consent of student adviser; OEH 0760; consent of instructor for non-degree candidates. Application and design of special systems for control of contaminants, low volume high velocity systems, pneumatic conveying systems; design and evaluation of systems involving high temperature, high pressure, and high humidity air; application of newly developed OSHA and NIOSH standards to process control.

0785. Journal and Film Review. Cr. 1.

Prereq: consent of student adviser. Films on industrial hygiene and other environmental health topics and presentations by environmental sampling and control equipment vendors; student and faculty reports on current journals.

0790. Directed Study. Cr. 1-6 (Max. 6).
Prereq: consent of student adviser; OEH 0502.

0797. Seminar in Occupational and Environmental Health. Cr. 1.
Prereq: consent of student adviser; consent of instructor for non-degree candidates.

0799. Master's Essay Direction. Cr. 1-3.
Prereq: consent of student adviser.

Prereq: consent of student adviser.

0899. Masters Thesis Research and Direction. Cr. 1-12.

Pathology (PTH)

0500. Fundamentals of Pathology. Cr. 2.
Coreq: ANA 0301. Open only to allied health students. Fundamentals of tissue injury and repair.

0600. Clinical Cytopathology. Cr. 7-8 (Max. 15).
Prereq: consent of instructor.

0705. Introductory Hematology. Cr. 3.
Prereq: enrollment in affiliated pathology program or consent of instructor.

0706. Dermatologic Slide Seminar. Cr. 1.
Prereq: M.D. degree, residence in pathology, consent of instructor. Demonstration and discussion of dermatopathologic sections stained by histologic and histochemical methods. Discussion of histochemical principles as applicable.

0707. Gynecologic Pathology. Cr. 3.
Prereq: M.D. degree.

0710. Urologic Pathology. Cr. 3.
Prereq: M.D. degree.

0711. Pathology of Bone and Joint Diseases. Cr. 3.
Prereq: M.D. degree.

0712. Pathology of Parasitic Diseases. Cr. 3.
Prereq: M.D. degree.

0713. Neuropathology. Cr. 3.
Prereq: consent of instructor.

0714. Dermatopathology. Cr. 3.
Prereq: M.D. degree.

0715. Pathology of Respiratory Tract. Cr. 3.
Prereq: M.D. degree.

0716. Surgical Pathology. Cr. 3.
Prereq: M.D. degree.

0717. Cytodiagnosis of Cancer. Cr. 3.
Prereq: M.D. degree.

0718. Pathology of the Heart. Cr. 3.
Prereq: M.D. degree.

0720. Histopathology of Ear, Nose and Throat. Cr. 2.
Prereq: M.D. degree.

0721. Forensic Pathology. Cr. 3.
Prereq: M.D. degree.

0722. Heart Conference. Cr. 2.
Prereq: M.D. degree.

0724. Liver and Renal Functions — Diagnostic Tests and Their Interpretations. Cr. 3.
Prereq: M.D. degree.

0725. Instrumentation in Clinical Biochemistry. Cr. 3.
Prereq: M.D. degree.

0726. Clinical Radiotopes — Theory and Application. (2,2). Cr. 3.
Prereq: consent of instructor. Theory and practice of radioisotope laboratory diagnosis. Classical and modern physics instrumentation; statistics; computation of radiation dose and radioisotope safety. Laboratory includes blood volume determinations, thyroid uptake and scan, iron metabolism, renal function.

0727. Pathophysiology of Hemostasis. (2,2). Cr. 3.
Prereq: consent of instructor. Investigation into the physiology of blood clotting and its evaluation; pathology of blood clotting, both acquired and inherited conditions.

0728. Medical Statistics. Cr. 3.
Prereq: consent of instructor; trigonometry and intermediate algebra recommended. Principles and computational methods of quantitative aspects of medical procedure; elementary correlation theory and prediction, sampling problems, tests of hypotheses, elementary test theory, interpretation of results.

0729. Metabolism of Disease. (2,0). Cr. 3.
Prereq: BCH 0701, 0702, 0703, 0704, 0705, 0706, or equiv. Alterations of biochemistry associated with disease processes, with emphasis on the application of newer biochemical principles.

0730. Cell and Tissue Ultrastructure. Cr. 3.
Prereq: consent of instructor. Meets for two-hour sessions weekly comprising lectures, assigned reports presented by the students, as well as group discussion.

0732. The Pathophysiology of Mycologic Disease. (2,3). Cr. 2.
Prereq: consent of instructor. Cryptococcus candidiasis, North American blastomycosis, South American blastomycosis, histoplasmosis, chromoblastomycosis.

0733. Pathology of the Kidney. (15,0). Cr. 3.
Prereq: M.D. degree; consent of instructor. Techniques of preparing renal biopsies for light and electron microscopy and immunofluorescent studies; ultrastructure of normal kidney; physiology of kidney — acute and chronic renal failure; glomerular disease; pyelonephritis; vascular disease; and acute tubular necrosis and renal transplantation.

0734. Molecular Cytology. Cr. 3.
Prereq: consent of instructor. Basics of electron microscope;

specimen collection and tissue processing; general ultrastructural organization of various organ systems and pathologic alterations in organ systems at the fine structural level.

0736. Ophthalmic Pathology. Cr. 3.

Prereq: M.D. degree, consent of instructor, resident in pathology or ophthalmology. Pathology of diseases of the eyes in humans.

0737. Oral Pathology. Cr. 3.

Prereq: M.D. or D.D.S. degree, consent of adviser and instructor. Presentation of inflammatory, reactive and neoplastic diseases of the oral cavity and surrounding structures.

0738. Medical Cyto genetics. Cr. 3.

Prereq: M.D. degree; residency in W.S.U. Residency Program in Pathology; consent of adviser and instructor. Basic principles of human heredity; autosomal and sex chromosomal defects in various pathological diseases; current cytogenetic techniques.

0743. Forensic Pathology and Jurisprudence. Cr. 3.

Prereq: M.D. degree; resident in W.S.U. Residency Program in Pathology; consent of instructor. Relationship of physicians to the law. Public health aspects of forensic pathology, workmen's compensation, and the pathology of trauma and sudden death.

0744. Pathology of Tumors of the Bones and Joints. Cr. 3.

Prereq: M.D. degree; resident in W.S.U. and Affiliated Hospital Training Program; consent of instructor. Important tumors and tumor-like conditions involving bones and joints.

0745. Comparative Pathology of Laboratory Animals. Cr. 3.

Prereq: completed training in general pathology or equiv. Spontaneous animal disease with particular consideration of important diseases in laboratory animals and disease entities that bear analogy to human disease and thus may serve as experimental models.

0746. Radioimmunoassay: Principles and Applications. (2,4). Cr. 2.

Principles of radioimmunoassay and competitive binding assays, related physics, instrumentation and radiation safety. Specific examples of tests available and interpretation of results.

0748. Immunologic Hematology for Blood Banking. Cr. 2.

Genetics as related to blood banking, general principles of immunology including kinetics of red-cell antigen antibody reactions, ABO system, ABH Se-Le biochemical pathology, Lewis antigen and antibodies, Rh system, other blood group systems, routine typing and other aspects of blood banking.

0790. Directed Study in Clinical Pathology and Pathologic Anatomy. Cr. 2 (Max. 18).

Prereq: M.D. degree; consent of adviser and graduate officer; resident in pathology.

0795. Research. Cr. 1-2 (Max. 10).

Prereq: M.D. degree; consent of adviser and graduate officer; resident in pathology.

0797. Seminar: Pathologic Anatomy. Cr. 1.

Prereq: M.D. degree and approved internship; resident in pathology.

0899. Master's Thesis Research and Direction. Cr. 1-12 (12 required).

Prereq: consent of adviser and graduate officer.

Pharmacology (PHC)

0750. Pharmacology Lecture. Cr. 5.

Prereq: PSL 0752, 0753, BCH 0701-0704. Introductory presentation of drug actions on living tissue.

0751. Pharmacology Laboratory. Cr. 2 (Max. 6).

Prereq: BCH 0701, 0703; PSL 0752, 0753; consent of instructor. Experience in experimental pharmacology; methods and techniques employed in studying the effects of drugs on living tissue.

0752. Cellular Pharmacology. Cr. 3.

Prereq: PHC 0750 and 0751 or equiv. Advanced presentation of basic drug actions as they affect cells, membranes and macromolecules.

0753. Autonomic Pharmacology. Cr. 3.

Prereq: PHC 0752 or equiv. Advanced coverage of drug receptor interactions, kinetics and the autonomic nervous system.

0755. Recent Developments in Pharmacology. Cr. 1-6 (Max. 12).

Prereq: PHC 0751 or equiv.

0758. Biochemical Pharmacology. Cr. 2.

Prereq: introductory biochemistry and consent of instructor. Current topics in biochemical pharmacology.

0760. Cardiovascular Pharmacology. Cr. 3.

Prereq: PHC 0750 and 0751 or consent of instructor. Modern concepts of the action of drugs on the heart and circulation with emphasis on molecular and biochemical mechanism involved.

0761. Neuroendocrine Pharmacology. Cr. 3.

Prereq: PHC 0750 and 0751, neuroscience equiv.; consent of instructor. Analysis of operations of neuroendocrine systems as biologic communications and control devices, both normal and pathologic, and their modification by drugs.

0763. Individual Studies in Pharmacology. Cr. 1-16.

Prereq: consent of instructor.

0766. Neurochemical Pharmacology. Cr. 3.

Prereq: general biochemistry. Biochemical features special to the nervous system with an emphasis on relating these to neuronal function and integrity in health and disease — manifest electrically, behaviorally and clinically.

0767. Advanced Neurochemical Pharmacology. Cr. 1-2.

Prereq: consent of instructor; coreq: PHC 0766. Laboratory work and special advanced reading providing in-depth exposure.

0768. Introduction to Clinical Pharmacology. Cr. 2.

Prereq: PHC 0751, BCH 0701-0703, M.D. degree or Ph.D. in pharmacology or related field. Administrative and legal requirements for undertaking human studies of drugs; for students with serious interest in pharmacology or the clinical study of drugs.

0769. Historical Development of Modern Pharmacology. Cr. 1.

Prereq: PHC 0751, BCH 0701-0703. The historical development of pharmacology as a cognate science from Arabic and European medicine. Library readings and term paper.

0797. Seminar. Cr. 1 (Max. 6).

Prereq: written consent of departmental graduate officer. Assigned readings and student presentation; faculty and outside speakers.

0899. Master's Thesis Research and Direction. Cr. 1-12
(12 required).

Prereq: consent of adviser.

0999. Doctoral Dissertation Research and Direction. Cr. 1-15
(45 required).

Prereq: consent of graduate committee.

Physiology (PSL)

0748. Profiles in Respiratory Gas Exchange. Cr. 3.

Prereq: PSL 0752, 0753. Analysis of physical-chemical determinants of respiratory gaseous exchange in normal and disease states including standard indices for examining adequacy of pulmonary function.

0750. Developmental Physiology. Cr. 2 (4 required).

Prereq: general physiology course; consent of instructor. Organ physiology (cardiovascular, respiratory, renal, gastrointestinal, endocrinology and nervous system) from the developmental viewpoint.

0752. Physiology. Cr. 5 (Max. 10).

Prereq: BCH 0705 and 0706 or equiv.; coreq: PSL 0753, 0754.

0753. Experimental Physiology. Cr. 2 (Max. 4).

Coreq: PSL 0752, 0754.

0754. Advanced Physiology. Cr. 2 (Max. 4).

Prereq: written consent of instructor; coreq: PSL 0752, 0753. Study of cell membrane, nervous system, muscle, circulatory system, kidney, respiration, digestive system, blood, endocrinology, reproduction.

0755. Advanced Renal Physiology. Cr. 2.

Prereq: PSL 0752 or consent of instructor. A detailed treatment of the physiological mechanisms promoting homeostasis of the body fluid volumes and ionic composition in the mammal.

0757. Reproductive Physiology. Cr. 2 (Max. 12).

Prereq: PSL 0753 or equiv.

0759. Blood. Cr. 2 (4 required).

Prereq: PSL 0753 or equiv.

0760. Recent Developments in Cardiovascular Physiology. Cr. 3-4.

Prereq: PSL 0753.

0762. Physiologic Anatomy: Basic Concepts. (2,2). Cr. 4.

Prereq: consent of instructor. Lectures and human dissection directed toward the study of the basic organizational concepts of the various systems of the body.

0763. Special Problems in Physiology. Cr. 1-3.

Prereq: consent of instructor.

0764. Cellular Physiology I. Cr. 3.

Prereq: advanced chemistry and biology courses.

0765. Surgical Physiology. (2,2). Cr. 4.

Prereq: consent of instructor. Lectures and laboratory sessions devoted to the basic concepts of surgical principles and techniques related to experimental physiology.

0766. Neurophysiology. Cr. 4.

Prereq: PSL 0752. Selected topics from the anatomy and physiology of the neuron and the mammalian nervous system.

0767. Introductory Biostatistical Methods. Cr. 5.

Prereq: consent of instructor; experience in use of Computing and Data Processing Center. Basic probability; random sampling; binomial, Poisson, normal distributions; confidence intervals/hypothesis testing, linear regression/correlation; analysis of variance; selected problems for digital computers.

0768. General Endocrinology I. Cr. 2.

Prereq: PSL 0752. Systematic discussion of endocrinology.

0769. General Endocrinology II. Cr. 2.

Prereq: PSL 0768. Continuation of Physiology 0768. Special topics, clinical correlation, and mini-symposia.

0770. Neuroendocrinology and Reproduction. Cr. 3.

Prereq: general endocrinology and neuroscience; consent of instructor. Principles of neurosecretion and neuroendocrine control in vertebrates, anatomy of mammalian central nervous system and pituitary gland, hormones produced by pituitary gland and reproductive processes influenced by neural processes.

0771. Mechanisms of Hormone Action and Secretion. (4,0). Cr. 4.

Prereq: PSL 0752, BCH 0701 and 0703 or equiv. Specific topics illustrating various mechanisms by which hormones are secreted and act on target cells. Experimental design used to obtain this knowledge reviewed in detail.

0772. Cellular Physiology II. Cr. 3.

Prereq: PSL 0764 or consent of instructor. Selected topics.

0773. Reproductive and Developmental Endocrinology. Cr. 3.

Prereq: PSL 0752, 0753. Lecture course for graduate students and advanced medical students. Advanced reproductive and developmental endocrinology based on most recent experimental and clinical data in animals and man.

0774. Physiologic Techniques. Cr. 4.

Prereq: PSL 0752, 0753, 0754; BCH 0701, 0703 or equiv. Short, several days to several weeks, exposure to technical applications with regard to physiologic function. Practical experience.

0775. Physiology of Aging (BIO 0559). Cr. 2-4.

Prereq: BIO 0103 or equiv. if elected for two credits; BIO 0566 or equiv. if elected for four credits. The aging process with emphasis on humans; discussion of cellular aging and theories regarding the process of aging.

0795. Research. Cr. 1-10 (Max. 10).

Prereq: consent of graduate adviser.

0797. Seminar. Cr. 1-3 (Max. 6).

0899. Master's Thesis Research and Direction. Cr. 1-12
(12 required).

Prereq: consent of adviser.

0999. Doctoral Dissertation Research and Direction.
Credits to be arranged.

Prereq: consent of doctoral adviser.

Psychiatry (PYC)

0701. Seminar in Psychiatric Research I. Cr. 5.

Credit only on satisfactory completion of Psychiatry 0703. Introduction to the methodology of research from the point of view of the biologic and behavioral sciences; initial application to personal research project.

0702. Seminar in Psychiatric Research II. Cr. 5.

Prereq: PYC 0701. Credit only on satisfactory completion of Psychiatry 0703. Introductory statistics as applied to the biologic and behavioral sciences. Elements of computer programming and electronic data processing, as used to retrieve and analyze psychiatric data.

0703. Seminar in Psychiatric Research III. Cr. 5.

Prereq: PYC 0702. Detailed reviews of specific methodological problems in sciences associated with psychiatry, such as sociology, medicine, psychophysiology, or neuropsychology. Progress or final report on personal research project.

0706. Computer Programming in Biostatistics I. (3,2). Cr. 5.

Credit only on completion of Psychiatry 0707. Prereq: high school algebra. Open only to graduate students in School of Medicine. Basic computer programming and biostatistics.

0707. Computer Programming in Biostatistics II. (3,2). Cr. 5.

Prereq: PYC 0706. Open only to graduate students in School of Medicine. Continuation of Psychiatry 0706.

0790. Directed Study. Cr. 1-5 (Max. 15).

Prereq: consent of adviser; coreq: PYC 0701 or 0702 or 0703. Study, including full literature review, of a problem of current relevance to psychiatry. Detailed guidance by adviser.

0795. Research Problems. Cr. 1-5 (Max. 15).

Prereq: consent of adviser; coreq: PYC 0701 or 0702 or 0703. Preparation of protocols or schedules for data collection. The gathering of data in a field related to psychiatry; accurate and systematic recording.

0899. Master's Thesis Research and Direction. Cr. 4-8 (Max. 12).

Prereq: consent of adviser. The preparation in writing of a coherent, complete and reasoned argument based on the research done in Psychiatry 0795.

Radiology (RAD)

0501. Radiological Physics I. Cr. 4.

Prereq: PHY 0218. Nature of radiation and its interaction with matter. Theory of dosimetry and instrumentation for detection of radiation. Principles of radiation protection. Specific problems in medical application of radiation.

0502. Radiological Physics II. (3,3). Cr. 4.

Prereq: RAD 0501. Continuation of Radiology 0501.

0503. Survey of Medical Radiation Uses and Hazards. Cr. 4.

Prereq: RAD 0501 and 0502. X-ray generating equipment. Patient dose for diagnostic procedures. Patient dose in therapy. Diagnostic and therapeutic uses of radioisotopes.

0512. Radioactive Tracer — Methodology. (1,3). Cr. 2.

Prereq: RAD 0501 or equiv.; one course in college biology and chemistry. Uses of radioactive isotopes as tracers in biological, chemical, and engineering studies. Design of experiments, preparation and counting of samples; analysis of results.

0521. Health Physics. Cr. 4.

Prereq: RAD 0501, consent of instructor. Lectures which emphasize the theory and applications of health physics.

0522. Radiation Hazards Laboratory. (0,9). Cr. 3.

Prereq: RAD 0521 or equiv. Laboratory and field exercises with commonly used equipment in health physics practice.

0700. Physics of Diagnostic Radiology. Cr. 4.

Prereq. or coreq: RAD 0501. Effect of quality and quantity of penetrating radiation on the diagnostic image as detected by films, screens and image amplifiers. Effect and control of scatter. Production of best image with least exposure dosage.

0701. Radiation Dosimetry I: General Theory. Cr. 4.

Prereq. or coreq: RAD 0501. Basic theory of dosage. Precise physical measurements of radiation as applied to a biological system.

0702. Radiation Dosimetry II: Instrumentation. Cr. 4.

Prereq: RAD 0701. The precision instruments of radiation dosimetry. Theory, structure, operation, application to clinical dosage. Limitations and sources of error.

0703. Radiation Dosimetry III: Radiation Field Theory. Cr. 4.

Prereq: RAD 0502. Radiation field theory. Problems of the limitation and effect of single, multiple and moving radiation fields.

0710. Physics of Nuclear Medicine. Cr. 4.

Prereq: RAD 0502. The fundamental physics of nuclear transformations. Production and decay of radioisotopes. Nuclear emission radiations; their detection and measurement.

0711. Advanced Radiation Biology. (4,0). Cr. 4.

Prereq: BIO 0500. Selected topics in vertebrate and general radiobiology presented in greater detail than in Biology 0500. Includes acute radiation syndrome, morphologic and physiologic pathology, recovery, repair, and late effects.

0712. Advanced Radiation Biology Laboratory. (0,5). Cr. 2.

Prereq: consent of instructor; prereq. or coreq: RAD 0711. Practical experience with the principles and methods considered in Radiology 0711.

0713. Radiation Dosimetry I. Cr. 4.

Prereq: RAD 0502. Exact physical and mathematical treatment of the dosimetry of electromagnetic radiation and beams of particles.

0714. Radiation Dosimetry II. Cr. 4.

Prereq: RAD 0713. Continuation of Radiology 0713 with emphasis on practical application of the fundamental theory.

0715. Radiation Fields and Their Dosimetry. Cr. 4.

Prereq: RAD 0714. Fundamental training for physicists concerned primarily with radiation therapy.

0716. Physics of Diagnostic Radiology. Cr. 4.

Prereq: RAD 0502 or consent of instructor. The basic science of diagnostic radiology, primarily physics but including the necessary

amount of electrical engineering of diagnostic circuitry and chemistry of diagnostic recording media.

0718. Physical Principles of Nuclear Medicine. Cr. 4.
Prereq: RAD 0502 or consent of instructor. The essential basic physics and mathematics, including statistics, of nuclear medicine.

0790. Directed Study in Radiological Science. Cr. 1-4 (Max. 12).
Prereq: written consent of instructor. Student conducts an investigative study, assisted and directed by a staff member.

0795. Seminar. Cr. 1-3 (Max. 3).
Prereq: consent of adviser. Required of all radiology majors. Presentations by graduate students, staff, visitors with emphasis on topics relevant to radiation biophysics and radiological health.

0799. Master's Essay Direction. Cr. 3 or 4.
Prereq: consent of adviser.

0890. Special Problems in Radiation Biophysics. Cr. 1-4 (Max. 4).
Prereq: consent of instructor, graduate officer. Independent study and research in advanced topics, to be selected by the student in consultation with the instructor.

0899. Master's Thesis Research and Direction. Cr. 2-12 (12 required).
Prereq: consent of adviser.

School of Medicine Directory

Dean1233 Scott Hall; telephone: 577-1335

Deputy Dean1241 Scott Hall; telephone: 577-1444

Admissions1269 Scott Hall; telephone: 577-1466

Affiliated Intern-

Resident Program ..1314 Scott Hall; telephone: 577-1353

Financial Aid1112 Scott Hall; telephone: 577-1039

Graduate Studies1206 Scott Hall; telephone: 577-1455

Records and

Registration1272 Scott Hall; telephone: 577-1470

Student Affairs1261 Scott Hall; telephone: 577-1463

Mailing address for all offices:

Wayne State University
540 E. Canfield
Detroit, Michigan 48201





Monteith College

ACTING DEAN: MARTIN HERMAN



Foreword

Monteith College was designed as a vehicle for experimentation in general education and was founded in the late 1950's as an independent unit of Wayne State University. Its principal purpose was to make available an interdisciplinary and integrated program of general education at a time when many educators felt that an increasing emphasis on specialized, professional training was undermining the traditional values of a liberal education. In the fall of 1959, a first class was admitted to Monteith, and a few years later the program was given a mandate by the University's Board of Governors to continue its experimental approach to general education as a regular and on-going College of Wayne State University. Subsequently, Monteith served as inspiration and model for small cluster colleges founded on campuses of large universities across the country.



Faced with adverse financial conditions, the administration of Wayne State University concluded early in 1975 that the University could no longer afford to support Monteith College. Its recommendation that Monteith be discontinued was subsequently supported by the University Council. At its meeting of December 12, 1975, the Board of Governors concurred and voted to phase out the College over a period of time not to exceed three years. The Chicano-Boricua Studies Program and the Program for Labor School Graduates, however, were specifically excepted; both were to be retained and relocated elsewhere in the University.

The following pages contain only that information deemed relevant to the operation of the College during the final portion of its phase-out period, a period to be completed during the academic year 1978-79. For a complete description of the Monteith program, the *Wayne State University Bulletin 1975-77* should be consulted.



PROGRAMS OF STUDY

Monteith is designed to serve two kinds of students: those who wish to take a degree in general education without any particular major; and those who wish to combine general education with specialized studies or with preparation for a profession. Both groups of students follow curricula which have this in common: they include the basic course sequences of the Monteith program, taken in a definite order.

The diagram below illustrates the place of the basic course sequences for most Monteith students. The sequence in Natural Science comprises twenty-four credits (six four-credit courses); that in socio-humanistic studies, eighteen credits (three six-credit courses); science of society, twelve credits; and humanistic studies, twelve credits. The Senior Group Requirement (see page 506) is for twenty credits. Hence, for a Monteith degree eighty-six credits are to be earned in required courses, leaving ninety-four credits (out of the 180 required for a bachelor's degree) available for electives, special studies, professional studies, or more intensive work in general education.

Students not entering during the fall quarter should expect some adjustments in the sequence in which they will take these courses. Every student, in consultation with a Monteith

adviser, may develop an individual program built upon the required Monteith courses and incorporating whatever other courses are needed to complete his or her undergraduate objectives.

Early planning is strongly advised. All members of the staff are readily available to discuss with students their plans, questions and aspirations. The Monteith Advising Office is especially competent in identifying the opportunities and requirements of virtually every field of study and in helping students with the detailed planning of their schedules.

With respect to other schools and colleges in the University, curricular opportunities for Monteith students include the following:

BUSINESS ADMINISTRATION

Students who wish to concentrate in business are advised to take certain courses in speech, mathematics, economics, management, accounting, and computer science during their first two years and then to apply for admission to the School of Business Administration during the third quarter of their sophomore year. It is possible to complete all the Monteith requirements and fulfill the requirements of a major within the School of Business Administration.

The Monteith Basic Courses Integrated Into A Student's Four-Year Program Under the Quarter System

Freshman Year			Sophomore Year			Junior Year			Senior Year		
Quarters			Quarters			Quarters			Quarters		
1	2	3	4	5	6	7	8	9	10	11	12
NATURAL SCIENCE			SCIENCE OF SOCIETY			HUMANISTIC STUDIES			SENIOR GROUP REQUIREMENT*		
SOCIO-HUMANISTIC STUDIES											

* Candidates for degrees from Monteith College only.

EDUCATION

Students who wish to prepare themselves for professions in the field of education have two options: they may take the combined curriculum in Monteith and Education, leading to a bachelor's degree from Monteith and a Michigan Provisional Certificate for either elementary or secondary school teaching of academic subjects, or they may transfer to the College of Education at the beginning of the junior year and take a degree from that college with a Michigan Provisional Certificate. Either way, the Monteith curriculum may be completed. The second option offers more opportunity for additional courses in the field of education.

ENGINEERING

Freshmen registered in the College of Engineering are required to complete a year-long sequence of courses for twelve credits in a new general education program designed specifically for engineering students. The program is being given by a team of Monteith and Engineering professors as an integral part of the student's professional training at the freshman level. Its goal is to develop, in conjunction with the technical program of the College of Engineering, engineers who are not only technically proficient, but resilient in the face of changing conditions, sensitive to human values, conscious of the social implications of their work and aware of their responsibility both as private individuals and as professionals to serve the interests and welfare of mankind. The program is designed not only to develop values, consciousness and a sense of moral and social responsibility, but also to provide students with the kind of historical perspective and understanding necessary to bring these values to fruition in the course of their professional activity.

The course sequence begins with a study of contemporary problems of society and technology viewed from the standpoint of a variety of disciplines. It then explores the background of these problems in the Age of Industrial Revolution, considering its scientific, social, political, economic, aesthetic, and literary ramifications.

Transfer students may elect to take all three courses in this sequence but only if they do so *in toto*. For the rest of the socio-humanistic requirements of the College of Engineering, see page 140.

LIBRARY SCIENCE

Positions in public, special, college and university libraries call for a broad undergraduate education.¹ The Monteith basic courses taken in conjunction with others selected through consultation with an adviser should assist the student interested in library work to gain the necessary breadth of education. It is recommended that the student elect at least one year of a modern foreign language, Computer Science 0201 (Introduction to Computer Science), History 0110, 0120, 0130 (The World and the West), Library Science 5497 (Intro-

duction to Librarianship), Library Science 5495 (General Reference Service), and Library Science 6494 (Technical Services in Libraries). The library science courses are open only to junior and senior students.

Preparation for professional positions in libraries consists of a graduate course of study which leads to the degree of Master of Science in Library Science. This program is offered by the Library Science Division, College of Education; see page 78.

LAW

The Monteith curriculum, either with or without a concentration in a special subject, is suitable for pre-law students. For admission to the Law School of Wayne State University or to that of most other universities one must have a bachelor's degree from an accredited college with a strong honor point average and an above-average score on the Law School Admission Test. Applicants are urged to take the test at least eight months before the opening of the term for which admission is sought. Information concerning the time and place of the examinations may be obtained from one of the Monteith advisers. Some law schools have special entrance requirements, and the applicant should inform himself of them.

LIBERAL ARTS

The following concentrations are available to Monteith students. They may be pursued singly or in combination with one another and may be initiated as early as the freshman year. Any student may complete the requirements of a major in any of these fields by remaining in Monteith or by transferring to the College of Liberal Arts.

Anthropology	Italian
Anthropology and Sociology	Journalism
Arabic	Latin
Art	Mathematics
Art History	Music
Biology	Near Eastern Languages and Literatures
Chemistry	Near Eastern Studies
Classical Civilization	Philosophy
Classics	Physics
Economics	Polish
English	Political Science
Family and Consumer Resources	Psychology
French	Radio, TV and Film
Geography	Russian
Geology	Slavic Languages and Literatures
German	Sociology
Greek	Spanish
Hebrew	Speech
History	Theatre
Humanities	

¹For the requirements for school library positions, see the College of Education section of this bulletin or consult with the Library Science Division.

BLACK STUDIES

In conjunction with the majors available in Liberal Arts and in some of the professional schools, it is also possible for the student to develop a co-major in Black Studies. Certain courses throughout the University have been identified as appropriate for this co-major, including the integrating seminars sponsored by the Center for Black Studies in cooperation with Monteith (see *Afro-American Experience*, page 507). Monteith students who take this option graduate with a double major — one in Black Studies and one in a special field.

MEDICINE

The Monteith student planning to enter Wayne State University School of Medicine must have a bachelor's degree for entrance and, in addition to completing the Monteith requirements, he must also earn, with a grade of C or better, twelve credits in general physics with laboratory, twelve credits in organic and twelve in inorganic chemistry with laboratory, and eighteen credits in general biology or zoology with laboratory, including a course in genetics.

A student planning to apply for admission to a different school of medicine is advised to correspond directly with that school concerning its specific entrance requirements. The *Admission Requirements of American Medical Colleges* may be referred to in the Adviser's Office.

NURSING

Monteith students who wish to study in the College of Nursing must earn a grade of C or better in Chemistry 0102, 0103, and 0104; Biology 0103 and 0220; and Psychology 0198; and pass the Mathematics Qualifying Exams or earn a grade of S in Mathematics 0090 by the end of the spring quarter prior to the fall quarter for which application to the College of Nursing is submitted. Ordinarily, one applies for admission to Nursing at the end of the sophomore year.

SOCIAL WORK

The School of Social Work grants a Bachelor of Social Work degree upon successful completion of fifty-four credits in prescribed courses in social work in addition to the eighty-seven credits required in Monteith; this leaves thirty-nine credits for electives in other fields. The prescribed undergraduate courses leading to the Bachelor of Social Work degree were developed through a pilot project co-sponsored by Monteith College and the School of Social Work. See page 579.

PRE-PROFESSIONAL ADMISSION

Admission to a pre-professional curriculum implies only that a student has chosen a professional goal. It does not guaran-

tee that the student will be accepted to the corresponding professional school of his choice.

The study of foreign languages is recommended for all students desiring a general education. Since nearly every graduate program has a foreign language requirement, students preparing for graduate school are urged to achieve fluency in at least one foreign language.

To be eligible for admission into Phi Beta Kappa (see page 510) a student must have a major field of study. Further information about Phi Beta Kappa is available from the Adviser's Office.

In all the foregoing curricular arrangements with professional schools and colleges, two major principles guide us: first, that it is pedagogically wrong to preclude an interested, capable student from professional studies simply on the ground that he has not accumulated 180 undergraduate credits. Educators must be sensitive to the periods of high motivation among their students and enable them to move into appropriate studies when their desire is strongest. Second, we recognize a complementarity between general and professional education. Far from being antithetical to professional studies, general studies provide context in which professional studies have meaning. The latter, in turn, will commonly raise larger issues and lead the alert student into new and fruitful paths of inquiry.



MONTEITH COURSES

BASIC COURSES

The heart of the Monteith program for entering freshmen is the basic courses, given in two closely related sequences — natural science and socio-humanistic studies — and described in the following pages. In the sophomore year, the student continues the natural science sequence and begins a sequence of three courses in science of society. In the junior year, a sequence of three courses in humanistic studies is required. Each sequence should be thought of as a single course extending over several quarters; students are examined and graded on each quarter's work. Although there are some exceptions, each course normally meets four hours a week — twice in large sections for lectures and twice in small discussion groups. The lectures are taped for the benefit of students who want to review them.

Ordinarily, a freshman begins the Monteith program in the fall quarter with Natural Science 0121, Socio-Humanistic Studies 0121, and an elective. In the winter and spring quarters he continues the natural science and socio-humanistic studies sequences. The scheduling of the rest of the sequences is shown on the chart on page 503.

TUTORIAL STUDIES

Students wishing to pursue a particular interest under the guidance of an instructor may sign up for a tutorial carrying from one to ten credits, depending on the plan of work. This type of study is designed to allow the student to deepen his or her knowledge of a particular area or to explore systematically a broad span of interest. It may entail extensive reading, research, writing, or field experience. It affords opportunity to design one's own project and to pursue it with a large measure of independence.

OTHER SEMINARS

Various seminars are offered by the faculty from time to time in areas of current interest to them. Students are invited to work with one or more of these faculty members in an apprentice relation, contributing what they can to the clarification of thought and experience on the topic through study and dialogue.

COOPERATIVE SELF-EDUCATION SEMINARS

This program, developed by students in 1963, allows Monteith students to plan an academic course and offer it to their fellow students. Any student, or several students working together, may develop a plan of course work and evaluation in any area or approach not already provided by a scheduled course of the College or University. The student(s) may earn credit by teaching the course, provided: (1) a faculty member agrees to act as sponsor; that is, to work with the students in any way needed to ensure the success of the course and to act as co-teacher in deciding course grades; (2) the College

is able to offer and the student leaders are able to take, concurrently with the student course, a Learning Process Seminar; and (3) a sufficient number of students enroll in the course to provide a functional teaching and learning situation. Interested students should obtain from the Adviser's Office a copy of the document "Current Guidelines to Cooperative Self-Education."

SENIOR GROUP REQUIREMENT

Every student seeking a degree from Monteith must complete the *Senior Group Requirement*. This may be satisfied by taking any of the following for a total of at least twenty credits: Senior Colloquium (four or eight credits); Senior Essay (four, eight, or twelve credits); World Views (four, eight, or twelve credits) or its equivalent.

A **Senior Colloquium** is a small group of students who come together to study and discuss a matter of common interest. Every group is responsible for selecting its faculty sponsor, but the major responsibilities rest on the students themselves: defining the topic, making contributions to the group, keeping a log or journal, and writing a reflective paper of substantial length related to material explored during the course of the Colloquium.

A **Senior Essay** is the product of considerable and prolonged independent work by an individual person guided by a faculty member of one's choice. It can take the form of an essay, a report, or a creative verbal, graphic, or musical work. In length and substance it is more than a term paper for a course but less than a master's thesis. It should bring the best abilities and energies of the student to bear in a sustained manner upon some project of personal value and significance. Students are advised to consult quite carefully with a chosen faculty member before embarking upon a Senior Essay. Senior Essays produced over the past several years may be examined in the College files. A Senior Essay Handbook is available in the Adviser's Office.

World Views is a sequence of three courses beginning in the fall quarter and designed to suggest possible syntheses in the history of ideas and to present interrelated themes and problems not previously treated in the basic sequences. It consists in a series of lectures supplemented by annotated bibliographies and suggested readings and other materials. In addition, there is opportunity for small group discussion to continue the exploration and application of the course content.

LABOR SCHOOL GRADUATES PROGRAM

A distinctive set of students in Monteith are the adults who have completed the non-credit program of the Labor School, administered by the Institute for Labor and Industrial Relations on the Wayne central campus. These students are generally between twenty-five and sixty-five years of age; they are members of the organized labor movement, most of them working to support families; racially integrated and about evenly divided between men and women. Since at least two thirds of this student population are able to take evening courses only, the College has established special sections of

its basic courses in the evenings. Essentially, these are the same courses as those taken by all other Monteith students, but there are some modifications in the lectures, assignments, and content of discussions which naturally flow from the richness of experience which Labor School graduates bring to the classroom.

AFRO-AMERICAN EXPERIENCE SEMINARS

In 1968 special courses were developed in Monteith to help members of all races understand better the social experience, cultural developments, problems and perspectives of black people in the United States. Today this sequence of three courses is taught by a team of blacks and whites who bring both scholarly and practical competence to bear upon the subject. Several of the staff members are visiting lecturers who hold joint appointments in the Center for Black Studies. The first course in the sequence uses mainly a social science approach; the second involves humanities. All three courses may be taken as integrating seminars by students taking a co-major in Black Studies.

WRITING

Rather than require of its students the traditional one year of English composition, Monteith College has made the teaching of clear, accurate, coherent, persuasive English prose an integral part of the instructor's responsibility in each of the basic courses. Students' written assignments are carefully evaluated on the basis of form as well as content. Limitation of the size of class sections makes it possible for instructors to give individual attention to each student's writing.

Since a Monteith student normally acquires a proficiency in English equivalent to that attained by one who has completed nine credits in English composition, official recognition of this is noted as non-degree credit on his or her academic transcript.

ADMISSION TO MONTEITH COURSES

All elective courses offered by Monteith College are open to students of other colleges of the University, but the consent of the Dean is required before these students may enroll in basic courses. Such students electing courses in Monteith should ascertain the type of credit applicable toward degrees in the colleges in which they are enrolled.

COURSES OF INSTRUCTION¹

Humanistic Studies (H S)

Basic Courses

0302. (HUM 0302) Continuity and Change. Cr. 4.
Ways in which the past and present intersect. The dynamics of historical change and the extent to which problems and possibilities bequeathed by a particular heritage determine the activities of artist and thinker.

0333. (HUM 0301) The Persistence of Tradition. Cr. 4.
Selected studies dealing with the recurrence and transformation of theme, symbol, and genre as man reinterprets his own image.

0334. Contemporary Man and the Arts. Cr. 4.
Contemporary issues; their roots in the past as well as their uniquely twentieth century character.

Other Courses

0290. Tutorial Studies. Cr. 1-10 (Max. 30).
Prereq: consent of division chairman. Guided individual studies. Credit adjusted to scope of project.

0397. Seminars in Humanistic Studies. Cr. 1-10 (Max. 32).
May be repeated for credit. Prereq: consent of division chairman. Several different offerings may be made each quarter. More than one section may be taken for credit simultaneously.

0399. Seminar: Cooperative Self-Education. Cr. 2-4 (Max. 16).
Prereq: consent of division chairman or delegate. Venture in cooperative self-education, subject to the current guidelines of the College for such an enterprise which are on file in the Advising Office and summarized in the Monteith College section of this bulletin.

0481. Senior Essay. Cr. 4.
Prereq: H S 0334 or consent of instructor, and senior standing; exceptions require consent of the Dean. Preparation for the writing of a substantial essay on some subject of intellectual interest. Essentially independent work, though carried on under the guidance of an adviser. No class meetings.

0482. Senior Essay. Cr. 4.
Prereq: H S 0481. Continuation of Humanistic Studies essay preparation.

0483. Senior Essay. Cr. 4.
Prereq: H S 0482. Culmination of Humanistic Studies essay.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

Natural Science (NS)

Basic Courses

0221. Logic, Experience and Inference. Cr. 4.

The formal structure of the sciences and the structure of the formal sciences. The nature of deduction and of deductive systems with examples drawn from geometry and logic.

0222. Ecology and Man. Cr. 4.

Prereq: consent of division chairman. The terrestrial ecosphere, its development, structure, dynamics and stability. The human component, its expansion, impact and prospects.

0223. Selected Topics in Contemporary Science. Cr. 4.

Prereq: consent of division chairman. Topics and issues in twentieth century science. Content and style vary between sections and years in response to student and faculty interest. Subjects treated have included: the development of pragmatic philosophy, the development of technology, human evolution and behavior, and computer use.

Other Courses

0290. Tutorial Studies. Cr. 1-10 (Max. 30).

Prereq: consent of division chairman. Guided individual studies. Credit adjusted to the scope of project.

0397. Seminars in Natural Science. Cr. 1-10 (Max. 32).

May be repeated for credit. Prereq: consent of division chairman. Several different offerings may be made each quarter. More than one section may be taken for credit simultaneously.

0399. Seminar: Cooperative Self-Education. Cr. 2-4 (Max. 16).

Prereq: consent of division chairman or delegate. Venture in cooperative self-education, subject to the current guidelines of the College for such an enterprise which are on file in the Advising Office and summarized in the Monteith College section of this bulletin.

0481. Senior Essay. Cr. 4.

Prereq: senior standing or consent of the Dean. Preparation for the writing of a rather elaborate essay on some subject of intellectual interest. Essentially independent work, though carried on under an adviser. No class meetings.

0482. Senior Essay. Cr. 4.

Prereq: NS 0481. Continuation of Natural Science essay preparation.

0483. Senior Essay. Cr. 4.

Prereq: NS 0482. Culmination of National Science essay.

Science of Society (SCS)

Basic Courses

0221. Individual and Society I. Cr. 4.

Prereq: consent of division chairman. Introduction to the study of individual and social behavior and social structures through texts and articles in psychology, social psychology, sociology, anthropology, and history. Development of individuals in interaction with their social environment and communities.

0222. Individual and Society II. Cr. 4.

Prereq: SCS 0221 or consent of division chairman. Continuation of Science of Society 0221, emphasizing larger social units, including social, political, and economic systems, with additional readings in political science, history, and economics.

0223. Individual and Society: Applications. Cr. 4.

Prereq: SCS 0221 or 0222 or consent of division chairman. Continuation of Science of Society 0222, application of analytical concepts from SCS 0221 and 0222 to the study of individual nations (such as China) or groups (for example, ethnic and racial groups in America).

Other Courses

0290. Tutorial Studies. Cr. 1-10 (Max. 30).

Prereq: consent of division chairman. Guided individual studies. Credit adjusted to the scope of the project.

0397. Seminars in Social Science. Cr. 1-10 (Max. 32).

May be repeated for credit. Prereq: consent of division chairman. Several different offerings may be made each quarter. More than one section may be taken for credit simultaneously.

0399. Seminar: Cooperative Self-Education. Cr. 2-4 (Max. 16).

Prereq: consent of division chairman or delegate. Venture in cooperative self-education, subject to the current guidelines of the College for such an enterprise which are on file in the Advising Office and summarized in the Monteith College section of this bulletin.

0481. Senior Essay. Cr. 4.

Prereq: senior standing or consent of the Dean. Preparation for the writing of a rather elaborate essay on some subject of intellectual interest. Essentially independent work, though carried on under an adviser. No class meetings.

0482. Senior Essay. Cr. 4.

Prereq: SCS 0481. Continuation of Science of Society essay preparation.

0483. Senior Essay. Cr. 4.

Prereq: SCS 0482. Culmination of Science of Society essay.

Socio-Humanistic Studies (SHS)

0131. The Impact of Technology. Cr. 4.

Required of all freshmen in engineering. Open to transfer students provided they take the complete sequence (SHS 0131, 0136, 0137). Extended case study approach to the social and human dimensions of a major technological development — energy conversion, transportation, or communication. (Topic may vary). Historical introduction to key concepts of technological change, economic growth, and cultural values.

0136. The Industrial Revolution I. Cr. 4.

Required of all freshmen in engineering. Open to transfer students provided they take the complete sequence (SHS 0131, 0136, 0137). Multi-disciplinary study of the beginnings of the Industrial Revolution, especially in Britain: political, commercial, scientific and technological forces for change; consequences in manufacturing, trade, imperialism, changing standards of living, quality of life; literary, philosophical and artistic responses.

0137. The Industrial Revolution II. Cr. 4.

Required of all freshmen in engineering. Open to transfer students provided they take the complete sequence (SHS 0131, 0136, 0137). Continuation of Socio-Humanistic Studies 0136. The spread of industrialization. Related changes in political economy, education, philosophy, social thought, literature, the arts. Consideration of energy, ecology, technological assessment and alternative futures.

Interdivisional Courses (MON)

Black Studies

0351. The Afro-American Experience I. Cr. 4-12 (Max. 12).

Prereq: sophomore standing. The role played by Afro-Americans in the development of American culture and society over the past three centuries, with special attention to the contemporary.

0352. The Afro-American Experience II. Cr. 4-12 (Max. 12).

Black writers', playwrights' and poets' work will be examined in depth.

0353. The Afro-American Experience III. Cr. 4-12 (Max. 12).

Prereq: successful completion of four credits in MON 0351, 0352 or four credits in Black Studies (I D 0390). Provides those students who have had a general course in the Afro-American experience with a research oriented seminar in contemporary black concerns.

Options for Senior Group Requirement

0441. World Views I. Cr. 4.

Prereq: senior standing. Significant paradigms of explanation as they inform the Western and Oriental arts and sciences.

0442. World Views II. Cr. 4.

Prereq: MON 0441. Continuation of Interdivisional 0441. The nexus of art, philosophy and religion in Hinduism, stoicism, epicureanism and humanism.

0443. World Views III. Cr. 4.

Prereq: MON 0442. Culmination of this Interdivisional sequence. Study of primitivism and the conversion of methodology to methodiatry.

0491. Senior Colloquium I. Cr. 4.

Prereq: senior standing, HS 0334 or consent of the Dean. Discussion and criticism of books and other materials. Students will be encouraged to work independently as much as possible.

0492. Senior Colloquium II. Cr. 4.

Prereq. or coreq: MON 0491. Discussion and criticism of books and other materials. Students will be encouraged to work independently as much as possible.

Other Courses

0397. Interdivisional Seminars. Cr. 1-10 (Max. 32).

Prereq: consent of instructor. Several different offerings may be made each quarter. More than one section may be taken for credit simultaneously.

0398. Seminar in Learning Process. Cr. 2.

Prereq: consent of instructor. Fulfills the requirement called for in the College's "Guidelines for Seminars in Cooperative Self-Education."

DEGREE REQUIREMENTS

Monteith College recommends students for either the degree of Bachelor of Arts or Bachelor of Philosophy upon their completion of a course of study approved by the faculty of the College. At least 180 credits are required. No more than six of these may be physical education credits; all other required credits must be in academic subjects.

The College specifies a minimum number of credits as a requirement for graduation in order that students may have some notion of the amount of work required for a degree. Students will err, however, if they measure their accomplishments primarily by the number of credits they acquire. Their objective should be the pursuit of an organized body of knowledge, and of those insights into the nature of human life which are called wisdom. Credits are crude measures of goals such as these, but are used by the College until better means of recording intellectual development have proved themselves.

GENERAL EDUCATION PROGRAM

In order to obtain either the degree of Bachelor of Arts or Bachelor of Philosophy a student who enters the Monteith program of general education as a freshman must:

1. pass the required Monteith College basic course sequences and the Senior Group Requirement with an average grade of C or better in all;
2. demonstrate ability to express himself clearly and accurately in English (proficiency in English composition, as acquired and demonstrated in papers written for Monteith courses, is noted on the student's transcript. The statement indicates that such proficiency is equivalent to nine credits, not degree credit, in communication skills);
3. pass with an average grade of C or better an adequate series of elective courses selected from those offered by any college of the University which, in the opinion of the adviser, form a coherent, broadly informative pattern for the individual concerned.

ADVANCED TRANSFER PROGRAM

In order to qualify for the degree of Bachelor of Arts or Bachelor of Philosophy, students in the Upper Division Program for Advanced Transfer Students must:

1. complete with an average grade of at least "C" thirty-six credits in the three advanced general education sequences: *Texts and Contexts; Historical Views and Views of History; World Views;*
2. complete with an average grade of at least "C" nine credits in elective courses in Monteith College;
3. complete satisfactorily an adequate series of courses selected from those offered by any college or school of Wayne State University which, in the judgment of the adviser form

a coherent, broadly informative pattern for the individual concerned — whether constituting a departmental major, a professional curriculum, or an interdisciplinary program;

4. complete a total of at least 180 credits (including credits transferred from other institutions) in courses acceptable toward graduation.

Hence a student who transfers to Monteith with, for example, ninety credits is required to take forty-five credits in Monteith courses (thirty-six of which must be in the three advanced general education sequences). The remaining forty-five credits may be devoted to general education or to the mastery of a major field of concentration or a professional program.

COUNSELING AND ADVISING

The general counseling of students in Monteith College is a primary responsibility of the College Advisers. Throughout his or her college career the student will encounter problems of a general nature. One should feel free to discuss these with the adviser, or any member of the faculty with whom he or she feels a special rapport. However, in order to provide continuity to the student's course selections from quarter to quarter, the adviser is assigned to assist him or her and must sign his or her program each time before he or she registers.

GRADUATION WITH DISTINCTION

A candidate for the Monteith bachelor's degree may receive a special diploma indicating that he has graduated "with distinction" or "with high distinction" under the following conditions:

Distinction — An honor point average of 3.4 if the candidate has earned at least 150 credits in residence, 3.5 if between 90-149 credits.

High Distinction — An honor point average of 3.7 if the candidate has earned at least 150 credits in residence, 3.8 if between 90-149 credits.

PHI BETA KAPPA

Phi Beta Kappa, the oldest scholarship honor society in this country, dating from December 5, 1776, installed its one hundred and fifty-sixth chapter, Michigan Gamma, at Wayne State University on January 16, 1953, under a charter granted to the College of Liberal Arts of the University. Membership in the chapter is restricted to its charter members and to those members of the junior and senior classes of the College of Liberal Arts and Monteith College who have been elected to membership by the chapter and who have formally accepted election and participated in the initiation ceremonies of this or some other cooperating chapter. In addition, all members of the University staff who have been elected to membership by another chapter of Phi Beta Kappa automatically become affiliated members of the local chapter for the duration of their stay in the University.

OTHER MATTERS

The administration of Monteith College reserves complete freedom of action, within the framework of its University responsibilities, to deal with all matters not specifically discussed in this bulletin.

Monteith College does not accept ROTC credit toward the bachelor's degree.

FURTHER INFORMATION

Any interested person is invited to visit or call the Monteith College Advising Office. The office is at 5165, the Mall. Please feel welcome to write or telephone for an appointment. The number is 577-4358.

For complete information regarding academic rules and regulations of the University, students should consult the General Information section of this bulletin, beginning on page 5.



FACULTY

ADMINISTRATION

Martin M. Herman: Acting Dean and Chairman,
Humanistic Studies

Carlton Maley: Chairman, Natural Science

Thomas F. Waters: Chairman, Science of Society

Jaime de la Isla: Coordinator, Chicano-Boricua
Studies Program

Linda G. Henson: Academic Services Officer

Gloria S. Fisher: Adviser

PROFESSORS

Joseph T. Armstrong, Jerry G. Bails, Robert Broner, Max
Coral (Emeritus), Otto Feinstein, C. Yates Hafner, Martin
M. Herman, Sara E. Leopold, Sandra U. McCoy, Clifford
L. Maier, Woodburn O. Ross (Emeritus), Alfred L. Stern,
Jay Vogelbaum, Rolland H. Wright

ASSOCIATE PROFESSORS

Ernst Benjamin, V. Carlton Maley, James A. Ruffner,
Thomas F. Waters

ASSISTANT PROFESSORS

Ronald A. Aronson, Ramon J. Betanzos, Rodabe Bharucha-
Reid, Marc R. Cogan, James L. Cowan, Charles K. Hyde,
Jaime de la Isla, Charles Rooney, Isabel Salas, Ciro H.
Sepulveda, Stephen K. Victor, R. Fred Wacker

Monteith College Directory

Dean

Monteith Administration Building, 5165 Second; 577-4350

Advising

Monteith Administration Building, 5165 Second; 577-4358

Chairman

Humanistic Studies Division, 5140 Second; 577-4362

Chairman

Natural Science Division, 631 Merrick; 577-4367

Chairman

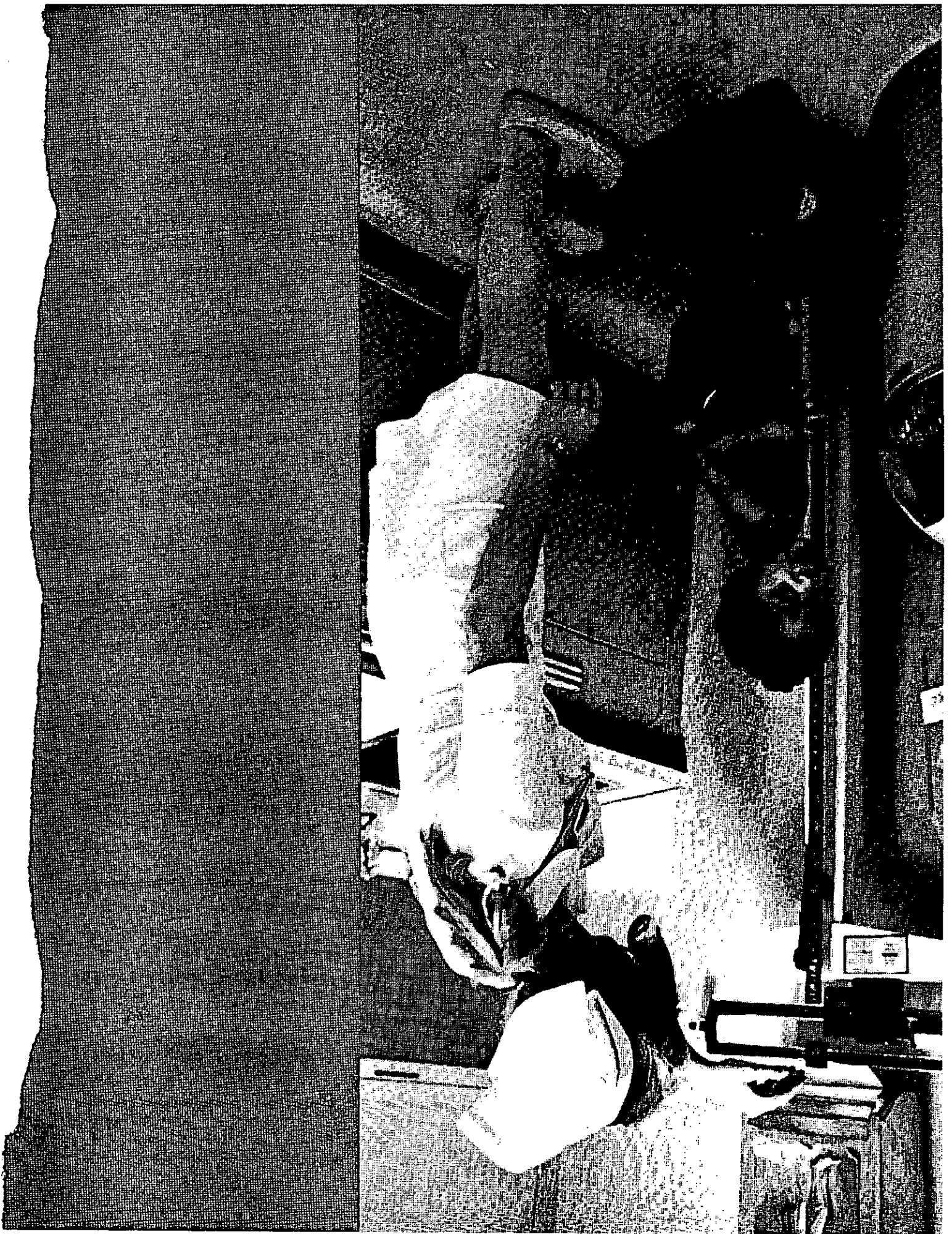
Science of Society Division, 631 Merrick; 577-4375

Student Center 5120 Second; 577-2381

Day Care Center 5120 Second; 577-2381

Mailing address for all offices:

Wayne State University
5165 Second — The Mall
Detroit, Michigan 48202



College of Nursing

DEAN: LORENE R. FISCHER

Foreword

HISTORY

The College of Nursing of Wayne State University offers students an opportunity to study nursing in a professional school which places high value on the individual student and on a close relationship between faculty and students.

From its beginning in 1930, when a program of study was developed for public health nurses in the College of the City of Detroit, nursing at the University has had a close and reciprocal relationship with the community. Thus, students have had the opportunity of studying in a great urban university that utilizes for its teaching purposes the rich cultural resources of the entire metropolitan area.

From 1930 to 1945, a variety of programs was offered in the Department of Nursing:

1. a certificate program in public health nursing for registered nurses,
2. a program for registered nurses employed in hospital nursing services and in schools of nursing,
3. a five-year baccalaureate degree program in cooperation with hospital schools of nursing, and
4. a program with selected hospital schools of nursing through which the hospital students received a portion of their instruction in the University.

Through these early years the programs of the Department of Nursing in the College of Liberal Arts had become so varied, the enrollment so large and the contribution to the total community so important that it was evident that the interests of all could best be served by the establishment of a college of nursing within the University.

In 1944, at the request of the Detroit Council on Nursing and the College of Liberal Arts, the Board of Education authorized the establishment of the College of Nursing. The College began to function as one of the components of the University in the Spring of 1945.

In 1947 for the first time, the College assumed responsibility for teaching clinical nursing courses in a program leading to the degree of Bachelor of Science in Nursing. A number of hospitals and health agencies were selected by the faculty as settings for the clinical instruction and students from this program were eligible to take the examination for the registered nurse license.

Since 1945, the College has had programs in nursing leading to the degree of Master of Science in Nursing. These programs offer preparation in clinical specialties in nursing and

in teaching and administration. The development of the graduate program has contributed to the strengthening of the research effort of the faculty.

The College has had substantial financial support from public and private sources such as the United States Public Health Service, the Children's Bureau, the W. K. Kellogg Foundation, Greater Detroit Hospital Fund, the Rockefeller Foundation, Greater Detroit Hospital Fund, Richard Cohn Foundation, and the Helen Newberry Joy Fund. Support from these sources made it possible for the College to develop its clinical courses on the undergraduate and graduate levels; to have a new home, the Richard Cohn Memorial Building, in 1960; to contribute to the building of the Helen Newberry Joy residence for women students of the University; and to provide financial assistance to nursing students.

Detroit Education for Nursing via Television (DENT) began in 1966 in response to a request from the Michigan League for Nursing for the College to take the leadership in a project involving twelve schools of nursing. Initially, the project was funded by the Department of Health Education and Welfare to develop televised lessons for the schools.

Research of problems relevant to nursing has been a part of faculty function for a number of years. In the fall of 1969, the Center for Nursing Research was established; two years later the name was changed to the Center for Health Research, to be more consistent with the scope of the research activities. A research development grant from the Division of Nursing, U.S. Public Health Service, contributed to the establishment and growth of the Center and research productivity of the College in the early 1970s. Funding for research and the support services provided by the Center currently come from various sources, including the federal government, private foundations and organizations, and state funds. The College of Nursing is nationally recognized for the quantity and quality of research relevant to the profession and practice of nursing.

In response to both the need and demand for advanced research training in clinical nursing, the graduate faculty in nursing developed a doctoral program leading to the Doctor of Philosophy Degree in Nursing. In October 1974, the Board of Governors approved the program, which began in September 1975. An Office of Community Educational Services was established within the College in 1974, to promote and coordinate the development of continuing education and academic programs off-campus. Under its auspices, a master's program in nursing was inaugurated in the Upper Peninsula of Michigan in 1975.

The College has made nationally recognized contributions to the staffing of educational and service organizations, in curricula designs, in teaching methods and in patterns of care, all aimed at the improvement of patient care. The accomplishments of the College provide a base for further innovations. The College is committed to the pursuit of new knowledge in the complex areas of improving nursing service, the education of nurse practitioners, teachers and administrators and the development of new models of health care. Greater Detroit and its community services provide the

University with a laboratory for investigation of problems, identification of knowledge, and the application and testing of knowledge for the improvement of teaching as well as the practice of nursing.

PHILOSOPHY

A democratic society is judged by the way it serves the individual. There is an ever-widening gap between individual needs and the responsiveness of social institutions to those needs. The delivery of health services, in particular, has become increasingly inadequate. The faculty of the College of Nursing believes that nursing as a profession is committed to making opportunities for high quality health care equally available and accessible to all. Nurses have an obligation to participate, individually and collectively, in comprehensive planning and development to achieve this goal.

The College of Nursing exists for the purpose of preparing practitioners of nursing whose personal, social, and professional potentials have been developed so as to form a basis for continued growth. The faculty envisions nursing as an intellectual discipline which requires rigorous study of its many components as well as practice of its skills. The College also recognizes a correlative purpose of contributing to the body of knowledge in nursing and the improvement of patient care through systematic investigation of nursing problems and through the creating, demonstrating, and evaluating of innovations in nursing service design and experimental roles for nurses that are responsive to changing societal needs.

The College operates within the structure of the total University, benefiting from its strengths and resources and contributing to them. Inherent in the philosophy of Wayne State University is the belief that the University must prepare young men and women in such a way that they will have the intellectual and moral strengths to make value judgments and to assume participant roles in responding to the needs of a rapidly changing, complex society. Wayne State University accepts the responsibility for a reciprocal partnership with the community in which it lives with particular reference to utilizing University resources, talents, and knowledge in dealing with the serious problems of urban life.

As members of a college preparing professional practitioners whose major focus is on the health and welfare of the society, the faculty believes that emphasis should be placed on the development of each individual student to his optimum potential as an intelligent social being. Therefore, the student accepts the dignity and worth of man, selects values which foster an openness and readiness to accept the challenge of an ever-changing society, and uses reflective thinking and critical inquiry so that judgments are based on consideration of alternatives. As a professional person, the student uses knowledge creatively, increases his own self-awareness, readily accepts responsibility for his own actions and actively supports the goals of his profession.

The faculty believes that programs designed for the preparation of nurses must comprise the intellectual, social, and

technical components of a liberal and professional education that are available to students within an institution of higher learning. The faculty accepts the responsibility to admit and to assist students who have the potential for achieving success within this program. Active participation in program planning and in selection of learning experiences facilitates development of the individual student. Professional education is designed to encourage and support the student as he assumes responsibility for his own learning. It is sufficiently flexible to enable each student to develop further his unique interests and abilities. It utilizes the vast array of resources available within the urban university and the larger society of which the university is a part. The faculty supports the academic freedom of students to doubt, challenge, contest, and debate within the context of inquiry as an essential ingredient in the students' development. Continuing evaluation on the part of students and faculty is essential to ascertain the relevancy of the program in developing the perspective of the student as a person, member of society, and member of a profession.

The unifying concept in the professional aspect of the program is accepted as the nursing process. This approach is based on the acquisition and critical application of scientific principle as a basis for nursing actions and emphasizes process rather than procedure. The learning of skills inherent in this process must be provided under guidance of faculty in settings conducive to achieving the goals of the nursing program. The nursing actions implied in this process involve not only the independent functions of the nurse, but also those which are arrived at through intraprofessional and interdisciplinary collaboration.

As University faculty, the faculty of the College of Nursing recognizes that its professional function extends beyond contributions to formal teaching. The faculty accepts the responsibility to maintain open channels of communications between itself and its students, to contribute to the knowledge of nursing through research, to maintain the intellectual tone of the campus, to contribute to the improvement of health services of society, and to foster the achievement of the objectives of the nursing profession.

The faculty believes that undergraduate education should prepare the beginning practitioner in nursing with competencies in the utilization of the nursing process and with a base on which graduate education can be built. Graduate education in nursing prepares nurses for leadership in health care and further develops clinical competence and increased sophistication in exploring and identifying a theoretical framework for nursing practice. It serves as an introduction to scholarly discipline for those wishing to pursue graduate study or other approaches to systematic investigation. The focus is on the search for knowledge, identification of theory and the study of strategies of application. Opportunities are thus afforded to extrapolate those concepts from intellectual disciplines which enhance the understanding of human behavior in health and illness.

Graduate preparation also enables students to further realize their creative capacities and provides opportunity for collaborative functioning with health professions and others in effecting changes in nursing practice and health care.

ACCREDITATION

The undergraduate program is approved by the Michigan Board of Nursing, and graduates from it are admitted to the licensing examination for professional nurses in the State of Michigan, and all degree programs of the College are accredited by the National League of Nursing.

STUDENT ORGANIZATIONS

The College of Nursing Council is composed of elected representatives of students and faculty. Its purpose is to reflect the concerns of the College members to the University and the larger community. All members of the College are eligible for membership on Council committees.

Sigma Theta Tau, National Honor Society in Nursing, installed Lambda Chapter on the Wayne State University campus in June, 1953. Candidates for membership are selected on the basis of superior scholastic achievement, evidence of professional leadership potential, and dependable personal qualifications.

Alpha Tau Delta, a national professional fraternity for women in nursing established the Alpha Beta Chapter at Wayne State University in May, 1969. Scholarship, personality and character determine eligibility for membership.

COLLEGE OF NURSING ALUMNI ASSOCIATION

The Alumni Association of the College of Nursing is composed of graduates and former students of the College. This group is part of the general University Alumni Association, but has its own organization. Its purpose is to keep members in close touch with College activities and with professional developments, and to work for the welfare of the College of Nursing.

College of Nursing graduates are eligible for membership in the American Association of University Women.

UNDERGRADUATE STUDY

ADMISSION

The College of Nursing admits registered nurses who are graduates of a diploma or associate degree program in nursing and other qualified students who have achieved at least sophomore standing. High school graduates are admitted to the College of Liberal Arts for a pre-nursing program of study. The College is limited in the number of students that can be accommodated in the undergraduate program and has final jurisdiction in the selection of its students.

Pre-nursing and transfer students may file an Application for Admission to the College of Nursing as soon as the prerequisites have been met. The filing deadline is July 10th. Application forms may be secured from the College of Nursing. Registered nurses who have been admitted to the College of Nursing must file a separate application for admission to the nursing major.

ADMISSION TO THE NURSING MAJOR

Prerequisites

A. Satisfactory completion of forty-four quarter hours of credit including the following courses or their equivalents:

Biology 0103	.....	Introductory Biology
Biology 0220	.....	Introductory Microbiology
Chemistry 0102	.....	General Chemistry I
Chemistry 0103	.....	General Chemistry II
Chemistry 0104	.....	General Chemistry III
English 0150	.....	Freshman Composition
Psychology 0198	.....	Introductory Psychology
Sociology 0201	.....	Introduction to Sociology
or		
Social Science 0191	.....	Contemporary Society

In addition to the above, registered nurse students must also complete:

Interdisciplinary Health Science 0310	.....	Human Anatomy
Interdisciplinary Health Science 0320	.....	Human Physiology
Interdisciplinary Health Science 0331	.....	Basic Mechanisms of Disease
Psychology 0340	.....	Developmental Psychology
Nursing 0212	.....	The Nurse and the Individual III

B. Grades of C or better must be achieved in all of the above courses, and they may not be taken for Passed - Not Passed grades.

C. Basic mathematical skills must be demonstrated by satisfactory achievement in a college algebra course, satisfactory achievement on the Mathematics Qualifying Examination or in Mathematics 0090.

D. Registered nurses must complete placement examinations in nursing.

E. A student must have a level of health which is consistent with meeting the objectives of the curriculum.

HEALTH REQUIREMENTS FOLLOWING ADMISSION

A. Students who are admitted to the College of Nursing are required to have an annual physical examination by the University Health Service.

B. Throughout the program students must maintain a level of health consistent with meeting the objectives of the curriculum and practicing nursing safely. If a health problem occurs during a student's educational program, the faculty members responsible for clinical practice will assess the student's ability to continue in the program and will make recommendations for action to the director of undergraduate studies.

C. The University and College reserve the right to refuse or cancel a student's admission, or to direct his/her activities in the school if the health status indicates such action is essential for safeguarding patients with whom the student comes in contact, the student, or the University.

UNDERGRADUATE PROGRAM

Leading to the Degree of Bachelor of Science in Nursing

The undergraduate program is designed to prepare the student upon graduation to begin the practice of nursing in general and specialized hospitals, and in community health agencies. The program leads to the degree of Bachelor of Science in Nursing and provides a base for graduate study in nursing. It consists of a combination of courses in general and professional education.

Objectives

The graduate of the baccalaureate program is expected to:

1. Provide care to individuals, families and groups in a variety of settings with utilization of the nursing process, incorporating scientific knowledge and humanistic concepts.
2. Recognize and accept the rights and dignity of the individual.
3. Teach, supervise and guide others who participate in patient care, including ancillary personnel, patients and families.
4. Collaborate with members of the health team to promote and maintain the health of individuals, families or the community.
5. Participate in programs which promote the health and welfare of society.
6. Accept responsibility for personal and professional development.
7. Recognize and accept the ethical and legal responsibilities in nursing practice.
8. Promote improvement of professional practice.

GENERAL EDUCATION

A minimum of ninety-four credits must include:

Communication — English composition* and speech.

Natural Science — general biology*, anatomy* and physiology*, microbiology*, inorganic and organic chemistry* and biochemistry*; introductory and developmental psychology*, or psychology elective.

Social Science — a minimum of four courses to include principles of American government, introductory sociology*, one advanced course in sociology, one elective in social sciences.

Humanities — a minimum of four courses to include at least one in American or English literature.

Area of Concentration Sequence — a minimum of four courses in one academic subject area.

Other — nutrition, and electives.

Mathematics Qualification — The faculty requires the students to demonstrate their proficiency in mathematics.

PROFESSIONAL EDUCATION

A minimum of ninety-four credits is required.

	<i>credits</i>
NUR 0210.....The Nurse and the Individual I	3-6
NUR 0211.....The Nurse and the Individual II	2-7
NUR 0212.....The Nurse and the Individual III	2-9
NUR 0220.....Human Development and Human Services	2
NUR 0311.....The Nurse and the Family I	3-12
NUR 0312.....The Nurse and the Family II	3-10
NUR 0313.....The Nurse and the Family III	3-12
NUR 0326.....Perspectives in Nursing I	2
NUR 0327.....Perspectives in Nursing II	2
NUR 0440.....The Nurse and the Community I	3-8
NUR 0441.....The Nurse and the Community II	3-8
NUR 0442.....The Nurse and the Community III	3-8
NUR 0450.....Senior Seminar I	2
NUR 0451.....Senior Seminar II	2
NUR 0452.....Senior Seminar III	2
<i>an elective from the following</i>	
NUR 0420.....Special Topics in the Care of the Physically III Adult	2-6
NUR 0426.....Research Process Applied to Health Problems	2-6
NUR 0427.....Special Topics in Maternity and Child Nursing	2-6
NUR 0428.....Special Topics in Psychiatric Mental Health Nursing	2-12
NUR 0429.....Special Topics in Community Health Nursing	2-6
NUR 0524.....Mental Retardation and the Nurse	2-6

REGISTERED NURSES

Prior to entry to the nursing major provision is made for registered nurses to take placement examinations in nursing to validate previous education and experiences in nursing and to individualize their programs. Registered nurses who achieve satisfactorily on the examinations may complete the nursing major in three quarters or one academic year of full time study. Upon satisfactory achievement in these nursing courses, a minimum of forty-eight advanced standing credits may be granted toward the total of ninety-four nursing credits required for a degree.

* Grade of C or better must be attained.

Nursing major for the R.N. who has achieved satisfactorily on all placement examinations in Nursing

Fall Quarter

	credits
NUR 0440.....The Nurse and the Community I	8
NUR 0450.....Senior Seminar I	2
FAC 0223.....Principles of Nutrition and Nutrient Metabolism...	2*
Nursing Elective	2
	14

Winter Quarter

NUR 0326.....Perspectives in Nursing I	2
NUR 0441.....The Nurse and the Community II	8
NUR 0451.....Senior Seminar II	2
Nursing Elective	2
	14

Spring Quarter

NUR 0327.....Perspectives in Nursing II	2
NUR 0442.....The Nurse and the Community III	8
NUR 0452.....Senior Seminar III	2
Nursing Elective	2
	14

A part time program to complete the nursing major may be planned for the registered nurse who is unable to attend college as a full time student. This program must be completed within three years following admission to the nursing major.

BACHELOR'S DEGREE REQUIREMENTS

The degree of Bachelor of Science in Nursing is conferred upon each candidate who satisfactorily completes all the following requirements:

Credits — A minimum of 188 credits is required.

Honor Point Average — The student must achieve an honor point average of at least 2.0 in the areas of both general and professional education.

Proficiency Examination in English Composition — By the end of the sophomore year, all students are required to pass the proficiency examination in English composition. Students who fail to pass this examination must enroll in English 0208 (*Writing Workshop*).

University Requirement in American Government — See page 14.

Residence — The student must earn the last forty-five credits prior to graduation at Wayne State University. A minimum of thirty-six credits in professional nursing must be satisfactorily completed in the College of Nursing.

Time Limitation — If degree requirements are not completed within four years, the student's program is subject to re-evaluation.

Application for Degree — See page 18.

* May take for credit by examination.

GRADUATE STUDY

For complete information regarding graduate rules and regulations, students should consult the Graduate Division section of this bulletin, beginning on page 19. The following additions and amendments pertain to the College of Nursing.

ADMISSION

In addition to filing the *Application for Graduate Admission* which can be obtained from the Office of Graduate Admissions, Administrative Services Building, the applicant is also required to submit to the College of Nursing, *Application for Admission to the Graduate Program*. Both applications are available in the Office of Student Services, College of Nursing.

To qualify for admission to the master's program, the applicant must have completed a National League for Nursing (N.L.N.) accredited baccalaureate program in nursing with an honor point average of 2.80, or above the upper division. A probationary admission may be authorized if an applicant's h.p.a. is between 2.40 and 2.79 and there is substantial evidence of extra-scholastic qualifications of such merit as to warrant special consideration. Other requirements for admission include: (1) Graduate Record Examination (aptitude section); (2) professional competence as documented by references and current licensure as a registered nurse in some state. International applicants may be admitted on the basis of their national registration; (3) a personal statement of goals for graduate study; (4) an interview with an adviser in the clinical area of choice. Deadline dates for filing are the same as for the Graduate Division of Wayne State University.

Applicants who have completed other curricula or have deficiencies will be considered individually and may be required to enroll in designated undergraduate and graduate courses beyond the minimum credits necessary for advanced degrees. Opportunities are provided for the applicant to take examinations in nursing and general education. Satisfactory achievement in an examination will permit waiver of the required prerequisite. Such applicants are required to have an honor point average of 3.0 for their total undergraduate work.

Applicants unless otherwise advised should plan to start full-time study in the fall. The sequence of courses precludes admission for any other quarter unless the applicant is contemplating part-time study.

The Master of Science in Nursing Degree and the Doctor of Philosophy in Nursing Degree can be earned concurrently as well as sequentially. Applications for the doctoral program are accepted for the Fall quarter only. All materials must be received by February 15th. Interviews generally are held between February 15th and March 15th and students are notified of admission decisions by April 1st. Prospective doctoral students who wish to begin studies earlier may be admitted as a Post-Master's student and register for one quarter of full-time graduate study, or part-time registrations not to exceed a total of 16 credits, subject to the approval of the Graduate Officer of the College of Nursing. Enrollment as a Post-Master's student implies no presumption of later admission to the doctoral program.

In addition to meeting the requirements of admission to the master's program, the doctoral student must (1) have an H.P.A. of 3.0 or above for undergraduate study and 3.5 or above on a minimum of 16 credits of graduate study; (2) submit two or three examples of writing which may be published articles, a master's thesis or papers prepared as course requirements; and (3) arrange for two interviews with designated faculty members. Applicants are accepted by formal action of the Doctoral Admission Committee.

DEGREE PROGRAMS

MASTER OF SCIENCE

The objectives of the Master's Program are to prepare nursing students in a manner enabling them to evidence a level of achievement in which they:

1. Practice nursing within a theoretically based framework.
2. Use the process and methods of scientific inquiry in the study of nursing.
3. Evaluate and determine the nature of inter- and intradisciplinary collaboration required for the resolution of health care.
4. Formulate a position with respect to nursing's responsibility toward the political, social and moral issues which have a bearing on the quality of the health care received by society.

Program of Study

The curriculum in the M.S.N. program is two academic years in length, or 60-72 credits. Each student elects a clinical major (23-38 credits), a cognate or related science sequence (12 credits), a research sequence (14-20 credits) and a minimum of twelve credits of electives. Students may elect a functional minor (12 credits) in nursing administration or in teaching. Clinical minors (12 credits) are being developed by the faculty but are not ready to be listed in this catalog. Students should inquire of adviser for possible additions. All programs are subject to periodic revision.

Clinical Majors

Community Health Nursing Department

Community Health Nursing

The Community Health Nursing major is based on the multi-dimensional theory of prevention, causation and control of disease and illness. The promotion, preservation and restoration of health and the control or counteracting of physical and social conditions that threaten the health of individuals, families and groups in their usual environments are primary concerns. In line with these interests, the student is prepared to assume responsibility for the determination of health needs, assessment of health status, implementation of health planning and provision of care.

Nurses are prepared to work alone or in collaboration with other professional workers and consumers to provide these services to individuals, families, groups and communities.

Cognate: Adviser approved elections from behavioral sciences.

Major Requirements: NUR 0751, 6 credits; 0717, 5 credits; 0718, 5 credits; 0719, 6 credits; 0603, 4 credits; and OEH 0745, Epidemiology, 3 credits.

Maternal-Child Health Department

Advanced Maternity Nursing

The aim of the program is to enable the student to define and extend skills in the application of the nursing process for the care of families during the maternity cycle, including care of the neonate.

Students learn to systematically assess individual and family needs through history-taking and physical examination. Use of the nursing process incorporates assessment based upon psycho-physiological, social, and cultural factors and theories which are related to the antepartal, intrapartal, postpartal, and neonatal periods. Special emphasis is upon the clinical care of the high-risk mother and infant.

Cognate: BIO 0507, Genetics, 5 credits; BIO 0581, Embryology, 3 credits; plus electives.

Major Requirements: NUR 0721, 4 credits; 0722, 8 credits; 0785, 4 credits; and selection of two courses from the following: NUR 0603, 4 credits; 0717, 4 credits; 0718, 4 credits; 0719, 4 credits or 0704, 4 credits.

Nursing Care of Children and Adolescents

The goal of this program is to prepare a nurse for expanded roles in the nursing care of children (birth through adolescence), in traditional and new care settings. Emphasis in the program is on the development of clinical expertise, collaboration with family and health team members and clinical research. Learning experiences are provided in a variety of community and institutional settings with individuals and groups. Skills in systematic health history taking and physical examination are developed within the framework of the nursing process. In the second year of the program the student elects courses to prepare herself as a primary care provider for children or as an acute/chronic care specialist.

Cognate: BIO 0581, Embryology, 3 credits; PSL 0750, Developmental Physiology, 4 credits; FAC 0683, Human Development, 3 credits; BIO 0287, Human Heredity, 3 credits.

Major Requirements: NUR 0731, 4 credits; 0732, 5 credits; 0733, 5 credits; 0734, 12 credits; 0785, 4 credits; FAC 0788, 3 credits; NUR 0603, 3 credits, or 0718, 4 credits.

Medical-Surgical Nursing Department

Advanced Medical-Surgical Nursing

This major is designed to prepare a nurse with a high degree of clinical competence in the *non-specialized* care of the physically ill adult. Students who wish greater depth in a specific area may wish to add a clinical minor.

Cognate: PSL 0752, 10 credits; plus electives.

Major Requirements: NUR 0711, 0712, 0714, 16 credits; 0785, 4 credits; and selection of one course from the following: NUR 0717, 4 credits; 0718, 4 credits; 0719, 4 credits, or 0704, 4 credits.

Primary Care Nursing — Adult
(formerly Health Nurse Clinician Program)

This major is designed to prepare a nurse as a primary care provider for adults within a family context. Primary care begins with the client's initial contact with a health care provider and includes the assumption of longitudinal responsibility by that provider for care of the client and for coordination of care. Emphasis is placed on development of clinical judgment — the explanatory and managerial decisions made by the nurse when applying the nursing process.

Cognate: PSL 0752, 10 credits; plus electives.

Major Requirements: NUR 0715, 15 credits; 0713, 12 credits; 0719, 4 credits; 0785, 4 credits; 0718, 4 credits, or 0717, 4 credits.

Psychiatric-Mental Health Nursing Department

Adult Psychiatric-Mental Health Nursing

The clinical major includes courses providing opportunities to explore theories underlying practice, and to evaluate modes of psychiatric nursing intervention in various settings. Considerable emphasis is directed to nursing roles in primary care and consultation and collaboration with others in planning, development and evaluation of mental health care and services.

Supervised clinical experiences are offered in community mental health centers and/or other community-based programs dealing with current mental health issues.

Cognate: Adviser-approved elections from the behavioral sciences.

Major Requirements: NUR 0764, 4 credits; 0766, 4 credits; 0768, 4 credits; 0769, 4 credits; 0770, 4 credits; 0773, 4 credits; and 0785, 4 credits.

Child and Adolescent
Psychiatric-Mental Health Nursing

This clinical major provides opportunities to explore developmental theories, psychological theories, group processes and sociological theories. Nursing intervention is related to theory in clinical experiences with children, adolescents and families under stress or experiencing mental health problems. The use of various clinical agencies and community based programs or services for children, youth and families permit students to evaluate nursing intervention and to work collaboratively with others in planning, providing and evaluating mental health care services.

Cognate: Adviser-approved elections from the behavioral sciences.

Major Requirements: NUR 0765, 4 credits; 0767, 4 credits; 0768, 4 credits; 0769, 4 credits; 0770, 4 credits; 0773, 4 credits; and 0785, 4 credits.

Research Sequence

Each student elects a series of courses to provide experience in the use of the research process. Students who elect to write a thesis (University's Plan A) do not register for NUR 0794, although such students may audit the course while registered for NUR 0899. Students planning to develop a field study or practicum (University's Plan C) will register for NUR 0794 and then for as many credits of 0795 or 0796 as is necessary to complete the project.

Requirements: TBF 7663, Statistics, 4 credits; NUR 0702, 4 credits; 0794, 3 credits; and 0795, 3-6 credits, or 0796, 6-9 credits, or 0899, 12 credits, without NUR 0794.

Functional Minors

Teaching in Nursing (12 credits)

	<i>credits</i>
NUR 0701.....Curriculum Theory Development in Nursing.....	4
NUR 0703..... Process of Educational Program Planning in Nursing	4
NUR 0782.....Field Practice in Clinical Teaching	4

Leadership and Administration in Nursing (12 credits)

NUR 0761.....Administrative Process in Nursing	4
NUR 0763.....Personnel Development	4
NUR 0762.....Field Practice in Nursing Administration	4

PLAN OF WORK

In consultation with adviser, the student develops and files a *Plan of Work* upon completion of twelve to eighteen credits at Wayne State University. All prerequisites must be completed before filing the *Plan*. After approval by the Graduate Officer, applicant will be classified as a "Candidate." Once the *Plan of Work* has been approved, the student may sign his or her own program authorization for registration.

PLAN A — Thirty-six credits in course work plus a thesis (for twelve credits).

PLAN C — Forty-eight credits in course work including a research practicum or a field study.

Exceptions to Plans A, B and C — Students who elect advanced practitioner programs in the various clinical majors are required to complete a minimum of sixty-six credits.

Students preparing for positions in community colleges or vocational education programs may need additional courses to meet certification requirements.

A candidate must satisfactorily complete a seminar numbered 0700 or above in the major field during the last one-third of the course work.

DOCTOR OF PHILOSOPHY

The faculty of the College of Nursing offers a doctoral program designed to prepare nurses who will contribute to the growth of nursing knowledge. Students are expected to develop the competencies of an expert clinical practitioner and the investigative skills of a researcher. The conceptual frameworks which give direction to development of these competencies are derived from nursing and related disciplines. The program leads to the Ph.D. in nursing with emphasis upon research in areas directly relevant to the clinical practice of nursing. The purposes of the program are as follows:

1. Prepare practitioners who develop theoretically based nursing care within various health delivery systems.
2. Prepare investigators who contribute to the development of a conceptual system of knowledge from which nursing practice may be derived.
3. Prepare teachers and leaders who are capable of communicating nursing knowledge and who foster student development for professional practice.

<i>Areas of Study</i>	<i>Graduate Credits</i>
Clinical Nursing	28
Nursing Seminars	8
Related Discipline	20
Functional Area (teaching, administration, or other)	8
Research Methodology and Statistics	12
Thesis, Practicum, or Field Study	6
Dissertation	45
	135+

Students who do not possess the master's degree upon admission would be expected to complete requirements for that degree during the program of study outlined above. The areas of advanced clinical practice include nursing of children, adolescents, adults and families with complex health needs within various health care delivery systems. The disciplines from which a sequence of courses might be chosen include: biochemistry, physiology, human development, psychology, sociology, cultural anthropology, political science, philosophy, economics and others. The students will be encouraged to enroll in statistics and methodological courses appropriate to their area of study.

Application by graduates of baccalaureate programs, who do not yet possess the master's degree, is encouraged since the program of study outlined above permits completion of requirements for the M.S.N. degree while progressing towards the Ph.D. degree. The student has opportunities for concurrent registration in courses in advanced clinical nursing and in related sciences which permit a plan of work making a more economical use of time. The doctoral program may be completed in about four years. Applicants who have received the M.S.N. degree or its equivalent, should plan on a period of study ranging from two to three years depending upon the number of transferable credits.

ACADEMIC PROCEDURES

For complete information regarding academic rules and regulations of the University, students should consult the *General Information section of this bulletin, beginning on page 5. The following additions and amendments pertain to the College of Nursing.*

The items marked with an asterisk apply both to graduates and undergraduates; those not so marked apply only to undergraduates.

*REGISTRATION

Each student is required at the beginning of each quarter of attendance to register according to the procedure and schedule published in the official *University Schedule of Classes*. **Registration must be completed before the student may attend classes.** For registration dates, the student should consult the *Schedule of Classes*. The usual full-time undergraduate program is twelve to sixteen credits. With the written consent of the adviser, a sophomore, junior, or senior who has a cumulative 2.6 honor point average may elect additional credits. A minimum of eight credits in graduate courses constitutes a full-time load for graduate students. However, ten credits in graduate courses constitutes a minimum full-time program for graduate students who are receiving federal traineeships or fellowships or who are meeting residence requirements in the Ph.D. program.

Graduate students are required to obtain the signature of their major adviser and graduate adviser for all changes in elections.

Liability Insurance — Undergraduate students must carry liability insurance for the duration of their nursing studies.

Graduate students cannot register for courses involving field practice unless they are registered to practice nursing in Michigan, and have professional liability and malpractice insurance.

SCHOLARSHIP

1. The student must achieve an honor point average of at least 2.0 in both Liberal Arts courses and nursing courses in order to meet degree requirements.

2. A grade of D is unsatisfactory in any nursing course. A student receiving a grade of D may continue in the program only with consent of the director of undergraduate studies.

3. The graduate grading system is intended to reflect higher standards of critical and creative scholarship than apply at the undergraduate level.

Continuance in graduate status is contingent on satisfactory scholarship — i.e., grades of B or better. Grades of C and D are definitely unsatisfactory and constitute valid cause for excluding a student from graduate study. To be awarded a graduate degree the student must have achieved at least a B average. All graduate students in the College of Nursing

must maintain a B average. Students receiving grades of C in more than two nursing courses, or a grade of D in one major course, will be excluded. Grades of C must be offset with an equal number of credits with a grade of A.

*ATTENDANCE

Regularity in attendance and performance is necessary for success in college work. Each instructor at the beginning of the course will announce her attendance requirements. Students are expected to abide by attendance requirements and to assume responsibility for seeking guidance and direction as needed. Absence from field practice must be reported at once both to the agency and to the instructor.

PROBATION

1. A student is placed on probation if he/she does not maintain a minimum honor point average of 2.0 in academic courses.
2. A student is placed on probation if she or he does not maintain a minimum honor point average of 2.0 in the nursing courses.
3. If the cumulative h.p.a. is below 2.0, the final grade report will carry official notice of academic probation. If the h.p.a. in the nursing major falls below 2.0, a separate notice will be sent to the student by the Office of Student Services.
4. In order to remain in the college a student in the nursing major on probation must improve his/her honor point average each quarter and qualify for return to regular status within the next two quarters of full-time study. Any variation from this regulation requires permission of the director of undergraduate studies in consultation with the Undergraduate Admission, Promotion, and Graduation Committee.
5. In order to remain in the College of Nursing, the full-time pre-major student on probation must qualify for return to regular status within the next three quarters. The part-time student must qualify within the next four quarters, one of which must be full-time. The pre-major student's honor point average must not decrease. Any variation from this regulation requires permission of Director of Student Services.
6. Restriction: students on probation are not eligible to represent the College in any student activity.

EXCLUSION

1. A student who receives a grade of less than C in any two nursing courses will be excluded from the College of Nursing.
2. A student who receives a grade of "E" in any nursing course that has a clinical experience component will be excluded from the College of Nursing.
3. A student will not be allowed to continue to the next course of a sequence until she or he has achieved a grade of "C" or better in the prerequisite course that was failed.
4. A student may be excluded from the College at any time, without having been previously warned or placed on probation, for irresponsible attendance and/or performance in field practice assignments.

READMISSION

1. A student may apply for readmission to the College of Nursing through the Admissions, Promotions and Graduation Committee.

2. Undergraduate nursing students whose attendance has been interrupted are required to apply to the College of Nursing for readmission. Deadline date for such applications is July 10 for any quarter in the succeeding academic year. *Enrollment in required courses may have to be deferred for those who have interrupted their program of study. There is no assurance that a student can be readmitted at the point at which he or she withdrew or was excluded.*

*STUDENT RIGHTS AND RESPONSIBILITIES

Continuance in the College is contingent upon compliance with official rules, regulations, requirements, and procedures of the University and the College of Nursing. *The student is responsible for reading the contents of this bulletin pertinent to the College of Nursing and otherwise becoming informed and fulfilling all course and degree requirements in proper sequence with satisfactory scholarship.* In case of doubt regarding any matter affecting his or her standing as a student, the student should consult with the adviser. The faculty reserves the right to amend or revise the policies and requirements set forth in the College of Nursing section of this bulletin.

In addition to formal academic requirements, a student in the College of Nursing must demonstrate traits of stamina, character, and personality necessary for work in this field. A student may be required to withdraw from the College when, in the judgment of the faculty, behavior demonstrates that the student is unsuited for nursing.

Student Rights and Responsibilities for the University — see page 18.

*COLLEGE OF LIFELONG LEARNING

The College of Nursing, through the College of Lifelong Learning, offers courses and other educational programs, credit and non-credit, in various locations throughout the Greater Detroit metropolitan area and the State. These offerings may be in the off-campus locations of the College of Lifelong Learning or may be in designated sites requested by particular groups of students. Some courses offered are those regularly scheduled for the graduate or undergraduate programs, whereas others are addressed to a particular area of concern.

Students who have not been admitted to a degree program at the College of Nursing, Wayne State University, will be registered "with limited status." *When students are admitted to a degree program in the College of Nursing, they may petition for acceptance of these course credits as part of their degree requirement.* Information concerning off-campus courses or programs may be obtained from: Office of Community Educational Services, College of Nursing; telephone: 577-4100.

FINANCIAL AIDS

The University Office of Scholarships and Financial Aids, Room 222, Administrative Services Building (see page 37), administers scholarships, grants, loans and emergency funds available to all University students and funds provided especially for College of Nursing students.

Financial Assistance

Among some of the private funds available to nursing students are the Helen Newberry Joy Fund, the College of Nursing Alumni Fund, the Golda Krolik Fund, the John Helfman Fund, and the Wayne County Health Foundation Fund. These funds provide limited assistance for financially and academically qualified students. For information about these and other resources, the student should consult the Office of Student Services.

Scholarships for Graduate Students

Graduate-Professional Scholarships — Each year the University awards a number of tuition scholarships for students in graduate or professional degree programs. Application forms are available from the Office for Graduate Studies and are returnable by April 1. Awards are contingent upon acceptance for graduate study and full-time enrollment.

Employment Opportunities for Students

Part-time employment opportunities are available both on and off campus for students. Information about these and other opportunities may be obtained from the University Placement Services. A file of employment opportunities for registered nurses is kept in the Office of Student Services.



COURSES OF INSTRUCTION¹ (NUR)

Undergraduate Courses

All courses require consent of adviser.

0092. Orientation. 1 hour.
No degree credit.

0093. Orientation to the College of Nursing. 1 hour.
No degree credit.

0210. The Nurse and the Individual I. Cr. 3-6.
Individual behavior in health and minor illness; nursing assessment and action.

0211. The Nurse and the Individual II. Cr. 2-7.
Prereq: NUR 0210. Nursing individuals with uncomplicated physical and psychological problems.

0212. The Nurse and the Individual III. Cr. 2-9.
Prereq: NUR 0211. Nursing individuals with psychological disturbances and uncomplicated physiological disturbances.

0215. Adult Response to Physical Illness. Cr. 2.
Introduction to common patterns of human response to the stress of physical illness.

0220. Human Development and Human Services. Cr. 2.
Prereq: sophomore standing; consent of the program director of the College of Nursing. Interdisciplinary seminar on the nature of man and resources for meeting his needs.

0301. Introduction to Nursing Science. Cr. 2-6.
Prereq. or coreq: NUR 0212. Scientific concepts of pathophysiology basic to understanding the nursing needs of sick people of all ages.

0311. The Nurse and the Family I. (5,15). Cr. 3-12.
Prereq: NUR 0212. Nursing in the maternity cycle and nursing of all age groups with acute and long term illnesses. The influence of health problems on the family during hospitalization and at home.

0312. The Nurse and the Family II. (5,15). Cr. 3-10.
Prereq: NUR 0311. Continuation of Nursing 0311.

0313. The Nurse and the Family III. (5,15). Cr. 3-12.
Prereq: NUR 0312. Continuation of Nursing 0312.

0326. Perspectives in Nursing I. Cr. 2.
Prereq: NUR 0212. Issues and trends in nursing from a historical and current viewpoint with implications for future practice.

0327. Perspectives in Nursing II. Cr. 2.
Prereq: NUR 0326. Continuation of Nursing 0326.

0400. The Nursing Process. Cr. 3.
Prereq: must be licensed to practice as a registered nurse, cur-

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

rently engaged in direct care of adults. Examination of theories and methods related to the development of an approach to the nursing process.

0420. Special Topics in the Care of the Physically III Adult.
Cr. 2-6 (6 required).

Prereq: NUR 0313; senior standing. Topics: general medical-surgical patients; patients in acute psychobiological crisis; oncology patients; older patients; surgical patients; pharmacology for nurses; terminal illness; selected areas of pathophysiology; emergency nursing; psychological threat in surgical patients.

0426. Research Process Applied to Health Problems. Cr. 2-6
(6 required).

Prereq: consent of program director and NUR 0313. The research process in relation to a health problem. Formulation of research questions relevant to health care.

0427. Special Topics in Maternal and Child Nursing. Cr. 2-6
(6 required).

Prereq: NUR 0313. Study of highrisk mother and infant; nursing of children; family centered care in maternity nursing.

0428. Special Topics in Psychiatric Mental Health Nursing.
(1-2,3-12). Cr. 2-6 (6 or 12 credits required).

Prereq: NUR 0313. Topics: human sexuality and mental health; emotionally disturbed child; psychological responses to physical illness; community mental health nursing. Mental health needs of the adolescent; the after care of adult patients; mental health care of aging persons, child psychiatric mental health nursing.

0429. Special Topics in Community Health Nursing. Cr. 2-6
(6 required).

Prereq: NUR 0313. Topics: community health problems; rehabilitative aspects of nursing.

0432. Leadership in Nursing Service. Cr. 2-6 (Max. 6).

Open only to registered nurses. Principles of leadership as a basis for the development of skills and attitudes necessary for the management of nursing care.

0440. The Nurse and the Community I. Cr. 3-8.

Prereq: NUR 0313. The influence of community values, sanctions and dynamics on all dimensions of health and illness. The nurse as a practitioner and collaborator in interdisciplinary efforts to assist the individual, family and community to cope with complex health issues and to improve health services.

0441. The Nurse and the Community II. Cr. 3-8.

Prereq: NUR 0440. Continuation of Nursing 0440. Second course of a year-long sequence.

0442. The Nurse and the Community III. Cr. 3-8.

Prereq: NUR 0441. Continuation of Nursing 0441. Final quarter of a year-long course.

0450. Senior Seminar I. Cr. 2-6.

Prereq: consent of program director. Group development through study and experience in dynamics and process. Use of groups in patient care.

0451. Senior Seminar II. Cr. 2.

Prereq: NUR 0450. Continuation of Nursing 0450.

0452. Senior Seminar III. Cr. 2.
Continuation of Nursing 0451.

0490. Directed Study. Cr. 1-4.

0500. Problem Identification: Facts and Processes. Cr. 4.

Plan developed for investigation of problem of student's choice; criticism of examples of studies in nursing. This course may be elected by both undergraduate and graduate students.

0501. Nursing Patients in Acute Psycho-biological Crises. Cr. 4-8.

Prereq: consent of undergraduate program director. Directed study and practice in the nursing care of patients. The identification and solution of problems of nursing care and nursing administration.

*Courses open only to
special international students.*

0091. Introduction to Nursing Education. 2 hours (Max. 8).

No degree credit. Relation of nursing education in the United States to the social order; nursing education in other countries. Topics coordinated with interests and needs of the students.

0454. Orientation to Public Health Nursing Practice.
Cr. 2-16 (Max. 16).

Prereq. or coreq: NUR 0421 or equiv.

0465. Clinical Nursing. Cr. 2-16 (Max. 16).

Principles and practices of nursing in a selected clinical area.

0466. Field Practice in Clinical Nursing. Cr. 2-16 (Max. 16).

Prereq. or coreq: NUR 0465.

0467. Seminar in Nursing. Cr. 1-6.

0472. Field Practice in Teaching. Cr. 2-8 (Max. 8).

0475. Administration of Nursing Education Programs.
Cr. 4-8 (Max. 8).

Introductory study of theories of administration with emphasis on their applicability to the organization of nursing education programs.

0476. Field Practice in Administration of Nursing Education Programs. Cr. 4-16 (Max. 16).

Prereq. or coreq: NUR 0475.

0477. Curriculum Development in Nursing. Cr. 4.
Principles and processes of curriculum development.

0479. Teaching and Evaluation in Nursing. Cr. 4-6 (Max. 6).
Relationship of individual courses to the nursing school curriculum. Planning for clinical teaching and student evaluation.

0485. Administration of Nursing Services. Cr. 4.

Theories of administration and adaptations to institutional nursing services.

0486. Field Practice in Administration of Nursing Services.
Cr. 4-8 (Max. 8).

Prereq. or coreq: NUR 0485.

0487. Personnel Development. Cr. 4.

Personnel functions in nursing service; emphasis on supervisory employee relations.

0488. Research in Nursing. Cr. 4.

Introduction to process of scientific inquiry and to literature of nursing research. Students will select a nursing problem and develop a design for its investigation.

Graduate Courses

Open only to nurses admitted to the Graduate Program. Field practice courses are arranged on individual basis throughout the year. All courses require consent of adviser.

0095. Orientation to the College of Nursing. 1 hour.

No degree credit. For master's students.

0524. Mental Retardation and the Nurse. Cr. 2-6 (6 required).

Prereq: consent of the undergraduate program director. Biological and social factors in the etiology and approaches to care of the mentally retarded in multidisciplinary programs in residential and community settings.

0603. Organization and Change of Health Care Services. Cr. 3-4.

Prereq: senior or graduate standing. Experience relevant to comprehension and analysis of health delivery system components; special emphasis is given to criteria identification.

0641. Seminar in Selected Readings in Psychiatric Nursing. Cr. 2.

Prereq: consent of instructor. Selected literature with an opportunity to discuss its relevance to trends and practice in psychiatric nursing.

0666. Suicidology and Suicide Prevention (SW 0666). Cr. 2 or 4.

Prereq: baccalaureate degree, senior standing or consent of instructor. A theoretical exploration of suicidology with specific reference to behavioral manifestations of suicidal crises, patterns of intervention with individuals experiencing a suicidal crisis, and analysis of existing research.

0700. Teaching Concepts for Practitioners of Nursing. Cr. 4.

Open to graduate students in the clinical nursing programs. Not open to teachers of nursing. Preparation for the teaching component of the practitioner role.

0701. Curriculum Theory Development in Nursing. Cr. 4.

Principles of curriculum development and their application to constructing and revising the nursing school curriculum.

0702. Research in Nursing. Cr. 4.

Prereq. or coreq: introduction to statistics. Introduction to process of scientific inquiry and to literature of nursing research. Student will select a nursing problem and develop a design for its investigation.

0703. Process of Educational Program Planning in Nursing. Cr. 4.

Prereq: NUR 0701 or consent of instructor. Relationship of individual courses to the nursing school curriculum. Planning for clinical teaching and student evaluation.

0704. The Application of Psychological Theories to Health Care. Cr. 3-4.

A seminar in the processes and consequences of various theoretical positions in psychology about human behavior.

0705. Human Sexuality: Nursing Implications I. Cr. 2.

The seminar includes a review of literature and research related to human sexuality, and focuses on the sexual health care component of nursing, with application to the student's clinical specialty.

0706. Human Sexuality: Nursing Implications II. Cr. 2.

Prereq: NUR 0705. Continuation of Nursing 0705.

0711. Adult Clinical Nursing I. Cr. 4-8.

Various perspectives on health and disease. Application of scientific method to nursing practice in care of the adult with existing or potential impairment of self-help ability.

0712. Field Practice in Adult Clinical Nursing. Cr. 2-8.

Prereq: NUR 0711.

0713. Study of Selected Problems in Medical-Surgical Nursing. Cr. 2-16.

Prereq. or coreq: consent of instructor.

0714. Adult Clinical Nursing II. Cr. 2-8.

Prereq: NUR 0711. Continuation of Nursing 0711.

0715. Clinical Judgment in Nursing. Cr. 2-16 (Max. 16).

Prereq: consent of adviser. Assessment of individuals to determine health-illness states, conditions and situations.

0717. Nursing Care of Families. Cr. 2-12.

Prereq: consent of instructor. Nursing intervention in the care of individuals as members of their nuclear families.

0718. Nursing Care of Groups. Cr. 2-12.

Prereq: consent of instructor. Analysis of health nurse clinician relationship to special groups of patients and the physicians associated with their program of care.

0719. Nursing Care of Communities. Cr. 2-12.

Prereq: consent of instructor. Analysis of selected major legislative, political, social and economic trends and issues influencing community health using an epidemiological approach.

0721. Maternity Nursing I. Cr. 4.

Prereq. or coreq: BIO 0507 or 0561. Exploration and analysis of social changes and trends that influence maternal and newborn infant care. Opportunity to select, analyze and solve maternal and newborn infant nursing care problems.

0722. Maternity Nursing II. Cr. 4-8 (Max. 8).

Prereq: NUR 0721; prereq. or coreq: BIO 0507 or 0561. Continuation of Nursing 0721.

0731. Nursing of Children and Adolescents I. Cr. 4.

Analysis of health-care problems of individuals (birth through adolescence); physical and psycho-social assessment. Analysis of theories and concepts to develop modes of nursing; intervention for the care of children and their families in a variety of settings.

0732. Nursing of Children and Adolescents II. Cr. 3-8.

Analyses of health care problems of young children; physical and psycho-social assessment of young children to explore modes of nursing intervention. Application of role theories, systems theories and theories of planned change to nursing of children and their families.

0733. Nursing of Children and Adolescents III. Cr. 5.

Open only to students enrolled in Nursing Care of Children major. Analyses of health care problems of children and adolescents; physical and psycho-social assessment of children and adolescents to explore modes of nursing intervention in a variety of settings.

0734. Advanced Clinical Practice in Nursing of Children and Adolescents. Cr. 4-16 (Max. 16).

Prereq: NUR 0733 and consent of instructor. Advanced nursing practice in a health care setting to develop, implement and terminate nursing management for a caseload of individuals, birth through adolescence, in collaboration with the physician and other health team members. Synthesis of theories, concepts and knowledges of health and illness and the development of skills in managerial decision-making for individuals.

0751. Introduction to Community Health Nursing. Cr. 4-6.

Prereq: NUR 0450. Advanced practice in the care of individuals and families; community settings.

0761. Administrative Process in Nursing. Cr. 4.

Theories of administration and application to the nursing service. Philosophy, organization and functions of the modern nursing service.

0762. Field Practice in Nursing Administration. Cr. 4-8 (Max. 8).

Prereq. or coreq: NUR 0761.

0763. Personnel Development. Cr. 4.

Personnel function in nursing service; emphasis on supervisor-employee relations.

0764. Adult Psychiatric Mental Health Nursing I. (2,8). Cr. 4.

Prereq: admission to graduate program (Adult Psychiatric Mental Health Nursing). Constructs of general systems theory and psychodynamics of behavior underlying psychiatric nursing practice. Emphasis upon communication and interviewing techniques in the assessment phase of nursing process. Clinical practice.

0765. Child and Adolescent Psychiatric-Mental Health Nursing I. Cr. 4.

Theories underlying psychiatric-mental health nursing within a developmental framework. Clinical practice.

0766. Adult Psychiatric Mental Health Nursing II. (2,8). Cr. 4.

Prereq: NUR 0764. Theoretical constructs underlying practice with special emphasis on intervention phase of nursing process. Individual projects facilitate the operation of these constructs. Clinical practice.

0767. Child and Adolescent Psychiatric-Mental Health Nursing II. Cr. 4.

Prereq: NUR 0765. Analysis of multiple determinants of behavior within a developmental framework as a basis for designing and implementing nursing intervention with disturbed children and youth. Clinical practice.

0768. Psychiatric-Mental Health Nursing. Cr. 4.

Prereq: NUR 0766 or 0767. Development and identification of criteria to evaluate outcomes of nursing interventions that provide information for decisions to continue, modify or terminate nursing intervention. Clinical practice.

0769. Psychiatric-Mental Health Nursing with Groups. Cr. 4.

Prereq. or coreq: NUR 0768. Nursing intervention with groups of psychiatric clients. Clinical practice.

0770. Psychiatric-Mental Health Nursing with Families. Cr. 4.

Prereq: NUR 0769. The family under stress and in disequilibrium. Frameworks of various family therapists explored while the student develops a conceptual framework for her own practice. Clinical practice.

0773. Community Mental Health Nursing. Cr. 4.

Prereq: NUR 0770. A study of the development of the community mental health nursing concept and an exploration of the factors affecting the delivery of community mental health service. Clinical projects.

0782. Field Practice in Clinical Teaching. Cr. 4-8 (Max. 8).

0785. Seminar in Clinical Nursing. Cr. 2-4 (4 required).

Exploration of various issues affecting the role and function of the clinical nurse specialist.

0790. Directed Study in Nursing. Cr. 2-12.

Prereq: consent of graduate officer.

0794. Research Proposal Development. Cr. 3.

Prereq: TBF 7663; NUR 0702; approval of adviser to proceed with proposal. No credit towards thesis or dissertation. Combination lecture-independent study, providing supervision on research design and technical aspects of proposal for research project; shared learning-teaching experience for graduate students in various majors.

0795. Field Study. Cr. 1-6 (Min. 3; max. 6).

Prereq: consent of adviser and instructor. Study of a nursing situation or problem illustrating the application of relevant theories.

0796. Research Practicum. Cr. 2-9 (6 required).

Prereq: NUR 0702; consent of adviser and instructor. Focus on one aspect of a research project and writing of a research paper.

0797. Seminar in Administration in Nursing Service. Cr. 3.

0798. Seminar in Nursing Education. Cr. 3.

0799. Master's Essay Direction. Cr. 3.

0801. Seminar in Nursing Theory Development. Cr. 2 (4 required).

Prereq: NUR 0702 or equiv; doctoral student or consent of adviser. Theory construction and evaluation designed to assist students with conceptual and empirical problems; inductive and deductive approaches to theory building, conceptual frameworks, and model building.

0899. Master's Thesis Research and Direction. Cr. 3-12 (12 required).

0999. Doctoral Dissertation Research and Direction. Cr. 3-15.

Prereq: consent of doctoral adviser.

Required Cognates

PSL 0752	Physiology	Cr. 5 (Max. 10).
TBF 7663	Fundamentals of Statistics	Cr. 4.
MGT 0607	Industrial Relations	Cr. 4.
BIO 0287	Human Heredity	Cr. 3.
BIO 0507	Genetics	Cr. 5.
BIO 0561	Vertebrate Embryology	Cr. 5.
BIO 0581	Embryology	Cr. 3.
PSY 0563	Group Dynamics	Cr. 4.
FAC 0681	Human Development: Infancy	Cr. 3.
FAC 0682	Human Development: Early Childhood	Cr. 3.
FAC 0683	Human Development: Middle Childhood and Adolescence	Cr. 3.

FACULTY

Offices: 5557 Cass Avenue

PROFESSORS

Virginia Cleland, Joyce Day, Lorene Fischer, Mildred Gottdank, Jean Johnson, Dorothy Reilly

ADJUNCT PROFESSORS

Harold Gardner, Lillian Runnerstrom

ASSOCIATE PROFESSORS

Arnold Bellinger, Lucy Brand, Mary Castles, Joyce Fitzpatrick, Agnes Jahraus, Marie C. Josberger, Mildred Konlande, Barbara McArthur, Kathlene Monahan, Bernice Morton, Jeannette Poindexter, Jane Ronan, Fredericka Shea, Doris Slater-Stewart, Justine Speer, Jean Stallwood-Hess, Eileen Tiedt, Jean Werner-Beland, Dawn Zagornik, Ann Zuzich

ADJUNCT ASSOCIATE PROFESSORS

Marie Iverson, Crystal Lange, Cleopatra Walker

ASSISTANT PROFESSORS

Judith Agee, Alma Baker, Loretta Barber, Martha Blau, Shirley Cospser, Elizabeth Dayani, Mary Delaney-Naumoff, Nancy Dobson, Suzanne Feetham, Mary Freliga, Hertha Gast, Ingvarda Hanson, Leola Hogan, Martha Hood, Lois Hunt, Chellamma Jacob, Margaret Johnson, Rosemary Knapp, Norma McHugh, Darlene Mood, Judith Odiorne, Carol Porter, Dorothea Puckett, Judith Runk, Virginia Siewert, Mary Sprik, Fern Sturgis, Carol Tenerowicz, Beverly Tyler, Darimell Waugh, Alice West, Marilyn Wicker, Suzanne Yagley

ADJUNCT ASSISTANT PROFESSORS

Rosemary Bell, Jeanne Fitzgerald, Elizabeth Kent, Marcia Kopacz, Mary Scoblic

INSTRUCTORS

Susan Candiello, Jill Carrico, Charlene Cotting, Elizabeth Darwin, Marilyn Dodd, Geraldine Flaherty, Billie Hayward, Sharon Jette, Merrie Kaas, Christine Kovner, Catherine Kurek-Ovshinsky, Margaret McCracken, Catherine Miannecki, Nancy Rancilio, Katherine Schuler, Joan Smith, Elizabeth Taylor, Margery Vogel, Christine Wagner, Pamela Walsh, Eleanor Webb, Dian Wimberley

ADJUNCT INSTRUCTORS

Mary Anne Keyes, Marianne Leber, Sharon Noffsinger

College of Nursing Directory

Dean 230 Cohn; telephone: 577-4070

Associate Dean 240 Cohn; telephone: 577-4104

Administrative Officer 244 Cohn; telephone: 577-4086

Center for Health Research... 315 Cohn; telephone: 577-4134

Director of Graduate Studies 380A Cohn; telephone: 577-4139

Director of
Undergraduate Studies 348 Cohn; telephone: 577-4188

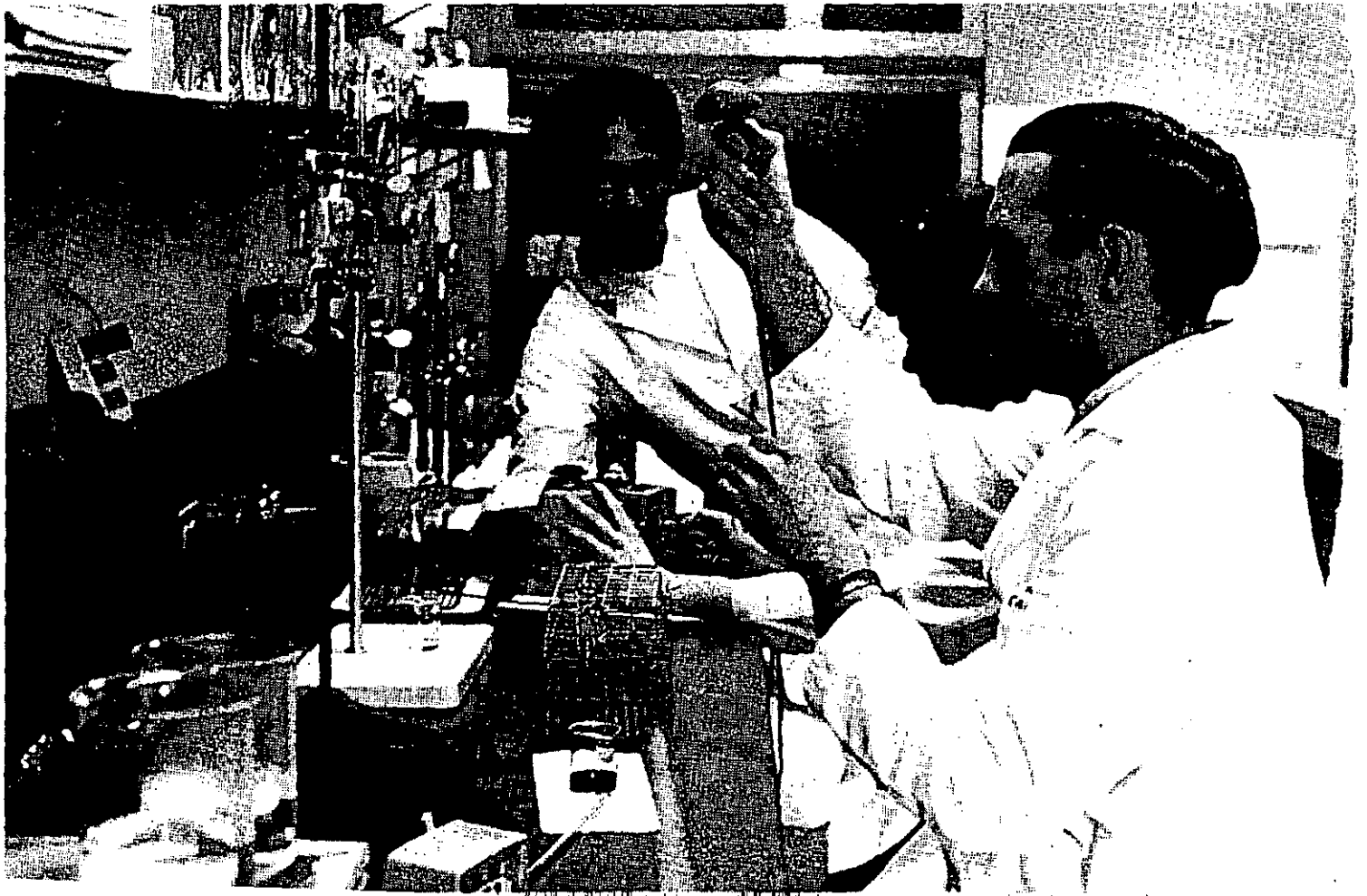
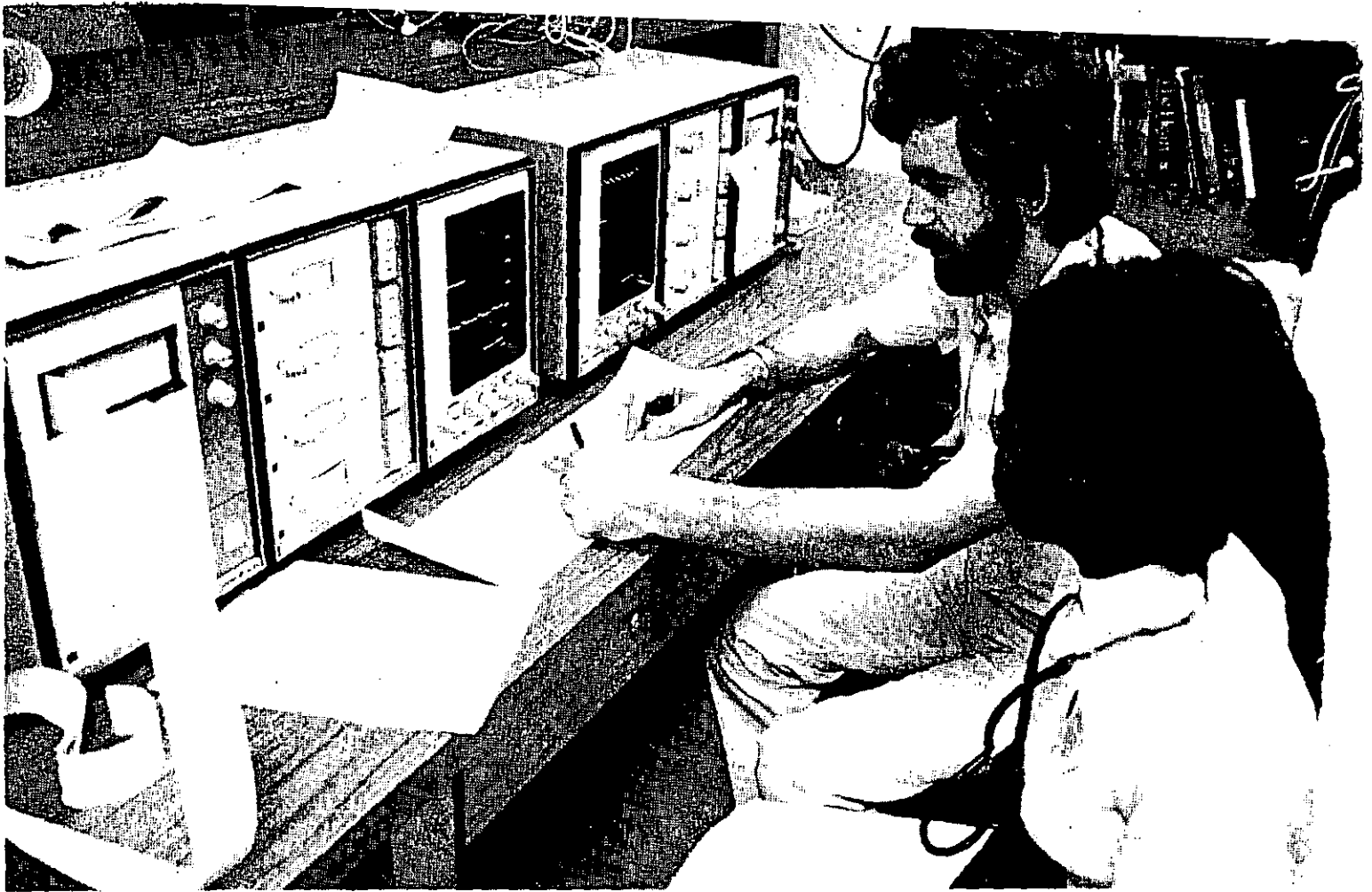
Office of Community
Educational Services 148 Cohn; telephone: 577-4100

Office of Student Services... 266 Cohn; telephone: 577-4084

Mailing address for all offices:

Wayne State University
5557 Cass Avenue
Detroit, Michigan 48202





**College of
Pharmacy and Allied Health Professions**

DEAN: EBERHARD F. MAMMEN

Foreword

The College of Pharmacy and Allied Health Professions is a unit of the University formed by the administrative affiliation of the College of Pharmacy and the Division of Allied Health of the School of Medicine.

This organization joins the administration of the programs of the former two units under the Dean of the College of Pharmacy and Allied Health Professions, with Deputy Deans for Pharmacy and for the Allied Health Professions, respectively. The academic programs of the two units maintain autonomous admission requirements, curricula, degree requirements and academic procedures.

In addition to foreseeing administrative advantages, the Administration of Wayne State University is convinced that creation of the College of Pharmacy and Allied Health Professions promotes the best interests of professional education in the units involved, in their Faculties and students, and in the University. The affiliation of pharmacy with the allied health programs is a natural step in creating an environment in which health professions students will undergo clinical practicums together, interact effectively, and learn together.



530 Faculty of Pharmacy

FACULTY OF PHARMACY

HISTORY

The Faculty of Pharmacy in the College of Pharmacy and Allied Health Professions traces its past through two pharmacy colleges.

In 1890, the Detroit College of Pharmacy was founded as a program in the Detroit Medical College, the forerunner of the Wayne State University School of Medicine. The Detroit College of Pharmacy later separated from its parent institution, operated independently for two years, and in 1907, affiliated with the Detroit Institute of Technology.

In response to the urging of Detroit area pharmacists, and developing from the six-year course in pharmacy established at Cass Technical High School two years earlier, a new College of Pharmacy was organized by the Detroit Board of Education in 1924. This College of Pharmacy and the Detroit Board of Education's Colleges of Medicine, Education, Liberal Arts, Engineering and Graduate School were united in 1933 into a university called the Colleges of the City of Detroit and named Wayne University in 1934. The College of Pharmacy was housed on Mullet Street in downtown Detroit from 1935 to 1952, at which time it moved to Old Main on the central campus of Wayne University. In 1957, one year after Wayne University became Wayne State University, the College of Pharmacy at the Detroit Institute of Technology joined the College of Pharmacy at Wayne by merging into Wayne State University.

Today, the Faculty of Pharmacy is a component of the College of Pharmacy and Allied Health Professions, offering a modern program of professional pharmaceutical education at the undergraduate level as well as graduate and graduate-professional programs.

AIMS AND OBJECTIVES

Wayne State University, with its location in the heart of the principal metropolitan area in the State, is committed to the achievement of three broad goals, consistent with its status as a major, complex, state-supported institution of higher education:

1. To provide effective programs of instruction at the undergraduate, professional, and graduate levels.
2. To promote research programs of excellence in both basic and applied fields.
3. To achieve optimum interaction of the University and the community in common educational, research, and community development interests.

The Faculty of Pharmacy is committed to the goals of Wayne State University. Within these goals, the Faculty has the following aims and objectives:

THE PROFESSION OF PHARMACY

The practice of pharmacy is a diverse and challenging health-care profession of much broader scope than could possibly be realized from casual contact with any particular place in which a pharmacist may practice his profession.

One of the great appeals of the profession of pharmacy is the variety of positions available to pharmacists. No community pharmacy, hospital or related institution, industrial or distributive complex, governmental or private agency, laboratory, or other single place of practice for pharmacists represents total pharmaceutical activity.

The professional responsibilities of pharmacists include activities involved in the development, preparation, storage, and distribution of drugs. Among these activities are: (1) the collection and production of raw materials; (2) the identification and evaluation by assay of such raw materials; (3) the determination of a medicinal agent's biological activity, its limitations, and standardization; (4) the control, by appropriate supervision and analytical techniques, of manufacturing operations; (5) the adequate preservation of drugs, including the selection and evaluation of containers, and the determination of the proper storage conditions and the effects of deterioration; (6) collaboration in the establishment of the therapeutic worth of a drug, including the selection of the most appropriate form for its administration or use; (7) quality control during distribution, including the enforcement of drug laws; (8) the compounding or dispensing of prescription orders; and (9) serving as a source of professional and public health information for the health-care team and the public.

No single pharmacist today engages in all of the above activities, but every pharmacist is involved with one or more of them. Practitioners in the profession are involved with drugs, patient care, and community health, and pharmacists function effectively with other persons or groups similarly concerned.

The great majority of students who complete the undergraduate curriculum in pharmacy enter community or hospital practice. Included in the activities of pharmacists are such responsibilities as: (1) dispensing prescription medication and aiding in selection or use of other health-care articles; (2) acting as an informed and readily accessible adviser to health-service personnel and the health-seeking public; (3) contributing to the continuing improvement in professional pharmaceutical service and sharing such contributions with other professionals; (4) assisting in training manpower for the profession of pharmacy; and (5) evaluating proposals for social and political improvement and actively supporting those approved by one's informed judgment.

The curriculum in pharmacy also prepares students to enter other important areas of professional practice — including industrial and governmental practice — or to pursue graduate study and research.

The Faculty of Pharmacy works energetically to ensure that its students acquire the education to practice the profession of pharmacy, develop the desire and ability to keep abreast of growing knowledge in the healing arts or health sciences, make contributions to their profession which they gladly

1. The preparation of pharmaceutical practitioners who, through an undergraduate program consisting of two years of liberal education and three years of professional education in humanistic, scientific, and clinical areas leading to the degree of Bachelor of Science in Pharmacy, will be prepared to practice a multifaceted profession in one of its numerous settings, including the community, medical complex, other health-care facilities, governmental and educational agencies, and research and industrial establishments.

2. The preparation of clinical pharmacy specialists, through a graduate professional program leading to the degree of Doctor of Pharmacy, who, as integral members of the health-care team in both community and institutional pharmacy practice, will fill the vitally needed role of drug therapy consultant on the health-care team, and who will serve as members of the clinical faculty of colleges of pharmacy.

3. The preparation of individuals for administrative, scientific, professional, and educational careers in private and public agencies and institutions concerned with health care through graduate scientific and professional educational programs and individual research opportunities in the various areas of pharmacy leading to the degrees of Master of Science and Doctor of Philosophy.

4. The development of both basic and applied research programs in the pharmaceutical sciences and professional practice.

5. Increasing pharmaceutical manpower supply by designing effective recruiting programs for students, including special programs for disadvantaged students, and by increasing professional efficiency by providing contemporary professional instruction to practicing pharmacists through continuing education programs.

6. Participation in community service programs by providing educational and consultative services to the public and public agencies on matters pertaining to drug use and abuse and by cooperating with pharmaceutical organizations and agencies in programs concerning professional matters including those of internship and licensure.

ACCREDITATION

Wayne State University is accredited by the North Central Association.

The Wayne State University College of Pharmacy and Allied Health Professions is a member of the American Association of Colleges of Pharmacy and is accredited by the American Council on Pharmaceutical Education.

The College is recognized by all state boards of pharmacy. By completion of the pharmacy curriculum, its graduates fulfill the educational requirements for examination and licensure as pharmacists in every state.

share with others, and have a willingness to accept the responsibility of wise community leadership.

Because the profession of pharmacy holds out opportunities of almost endless variety, the Faculty is dedicated to preparing its students for broad practice, rather than preparing them for a single place of practice within pharmacy.

Pharmacy is a health-care profession as old as yesterday and as new as tomorrow. It is a profession that draws from the past, functions in the present, and builds for the future.

REGISTERED PHARMACIST LICENSURE

Licensure as a registered pharmacist is available to graduates of the pharmacy curriculum of the College of Pharmacy and Allied Health Professions, either by examination or by reciprocity, in all states and in the District of Columbia.

INTERNSHIP

Internship is an educational program of professional and practical experience under the supervision of a preceptor in a pharmacy approved by the board for such purposes, beginning after an intern has satisfactorily completed two academic years of study in an accredited college or university.

For additional information regarding internship, examination or licensure in Michigan, write: The Executive Secretary, Michigan State Board of Pharmacy, 1033 S. Washington Avenue, Lansing Michigan 48926.

Reciprocity information is available from: The Secretary, National Association of Boards of Pharmacy, 77 W. Washington Street, Chicago, Illinois 60602.

CLINICAL EXTERNSHIP PROGRAM

In order to provide the pharmacy student with training in the application of the scientific knowledge he has gained throughout the pharmacy curriculum, a clinical externship is provided. This externship gives the graduating senior student opportunity to apply his pharmaceutical training in a variety of patient-care settings in several community and hospital locations within the metropolitan Detroit area. Each student in the externship will be individually assigned to varying types of experiences with a total time allocation in excess of 400 hours. The externship is required of all students. The student is expected to provide his own transportation and professional liability insurance.

OUTSIDE EMPLOYMENT

The undergraduate curriculum has been arranged with the presumption that the student will devote full time and energy to the pharmacy program. Pharmacy internship and other pharmaceutical employment is recognized as an integral part

of the academic and professional progress of the pharmacy student. A pharmacy intern must carry a state certificate of registration, renewable annually while the intern is actively pursuing a degree in a college of pharmacy. The student has responsibility for maintaining an appropriate balance of effort between these instructional parts of pharmacy's total educational offering.

STUDENT PROFESSIONAL ACTIVITIES

The Pharmacy Student Advisory Board (PSAB) is a representative organization of the student body of the Faculty of Pharmacy, organized for the purpose of advancing the College, the University, and the profession of pharmacy. Thus, the PSAB, and the following organizations or functions which are related to the pharmacy instructional program, are a basis for student activities and an integral part of the total educational offering in pharmacy.

A student chapter of the American Pharmaceutical Association (APhA), the national professional society of pharmacists, was organized at the College in 1947. In 1961, members of the APhA chapter voted to affiliate with the Michigan Pharmaceutical Association (MPA) in a joint student-membership arrangement. Active participation in the joint APhA-MPA chapter and its varied programs of interest is encouraged.

A chapter of the Student National Pharmaceutical Association (SNPhA) was established at Wayne State in 1976. The purpose of this organization is to plan, organize, supplement and coordinate a comprehensive program to improve the health, educational and social environment of minority groups in the United States; to aid both individuals and families in achieving a rich sense of dignity and self-respect. SNPhA hopes to provide a greater opportunity by which health oriented minority students can achieve greater self awareness and a larger representation in Colleges and Universities of the United States.

The Alpha Xi Chapter of Rho Chi, the national honor society of pharmacy, elects students to membership who attain the required academic qualifications and who are recommended by the faculty.

The following national professional pharmaceutical fraternities maintain active chapters at the College: Kappa Psi, Phi Delta Chi, Rho Pi Phi, and Lambda Kappa Sigma.

The Wayne Pharmic is a student publication of the College. Through this publication, students have their own medium for reporting about College events, activities in the pharmaceutical and allied health professions, as well as social, cultural, scientific and professional matters of particular interest to students and alumni.

The Profile is a monthly publication that conveys news of the activities of students, faculty and alumni of the College of Pharmacy and Allied Health Professions.

PHARMACY ALUMNI ASSOCIATION

The Pharmacy Alumni Association was established for the purpose of maintaining a close relationship between the Faculty of Pharmacy and its graduates.

The Alumni Association contributes to the development and general welfare of the Faculty of Pharmacy, its students, and the profession of pharmacy. The Association very actively cooperates with the Faculty in fostering various annual and special events of interest to the students, faculty, and alumni.

ADVISORY COUNCIL

The Advisory Council is a volunteer group providing input by pharmacy practitioners into the educational system. The primary role of the Council is to advise the Faculty of Pharmacy on all aspects of the provision of continuing education. The interests of the Michigan Pharmaceutical Association, the Michigan Board of Pharmacy, the other pharmacy schools in Michigan as well as the individual practicing pharmacists are represented.

The following are serving three year appointments (ending September 1979) on the Council: J. Bodendistel, H. Rubin (Community Pharmacy); J. Cronk, P. McClain (Hospital Pharmacy); L. Beemer, T. Olson (Industrial Pharmacy); L. Sesti (Michigan Pharmaceutical Association); R. Bernardi (University of Michigan); A. Koorhan (Michigan Board of Pharmacy).

STUDENT SERVICES

Assistant Dean for Admissions and Student Affairs

328 Health Sciences Building: 577-1710

This office is responsible for all academic advising and related counseling. Students who have questions relative to their professional curriculum or program should contact the office of the Assistant Dean. Students in the general curriculum should see the pre-professional counselor in Room 300, Shapero Hall; telephone: 577-4814.

This office also coordinates the scheduling of student activities and space utilization within the Health Sciences Building and Shapero Hall.

UNDERGRADUATE PROGRAM

For complete information regarding academic rules and regulations of the University, students should consult the General Information section of this bulletin, beginning on page 5. The following additions and amendments pertain to pharmacy students.

The minimum undergraduate program of all nationally accredited colleges of pharmacy is one of five academic years. Candidates for the degree of Bachelor of Science (Pharmacy) may either enroll in the College for the entire program, or after completing one or two years of acceptable studies at non-pharmacy colleges (such as the University's College of Liberal Arts, a community college, etc.), transfer to the College of Pharmacy and Allied Health Professions.

The undergraduate program in pharmacy leading to the degree of Bachelor of Science in Pharmacy is designed to prepare general practitioners for broad practice, rather than preparing them for a single place of practice within pharmacy.

Admission to the University is effected through the University Admissions Office. The Office of Admissions for Wayne State University is located in Room 116, Administrative Services Building, 5950 Cass Avenue, Detroit, Michigan 48202. Telephone 313-577-3560. Admissions counselors are available in the Office of Admissions for personal conferences to aid the prospective student. The Faculty of Pharmacy has final jurisdiction in the selection of its students.

The Faculty of Pharmacy identifies students as being in either a *general* or *professional* curriculum. Students in a general curriculum are usually engaged in a program of study similar to that of the first two years of the curriculum outlined on page 535. After acceptable progress has been established in a general curriculum, students are considered for acceptance into the professional curriculum in pharmacy.

It should be emphasized that enrollment as a general curriculum student is primarily for purposes of identification, counseling, and participation in student professional activities. *Full recognition as a degree candidate occurs only upon acceptance into the professional curriculum.*

GENERAL CURRICULUM

Applications

For applicants who have not previously attended Wayne State University as undergraduate students, an official *Application for Undergraduate Admission* with a \$15.00 Application Fee must be filed in the University Office of Admissions before any consideration regarding admissibility can begin. The application blank may be secured from the Office of Admissions. High school students in Michigan can secure an application from their high school counselor.

Applicants who have been previously enrolled in one of the undergraduate colleges within the University must file an *Application for Change of Undergraduate College Within Wayne State University* with the Office of the Registrar, Col-

Application Deadline

In order to be considered for admission, applicants must have their completed application, including transcripts and any other records necessary for admissions consideration, in the appropriate office on or before the following dates for the quarter indicated:

Fall Quarter	August 15	Spring Quarter	March 1
Winter Quarter	December 1	Summer Quarter	June 1

Students transferring from within or outside the University who anticipate admission to the professional curriculum (see page 538), granted only in the fall quarter, must have their application completed no later than May 1.

Recommended High School Preparation

Fifteen units of high school work are required for admission. The following units are recommended:

English	3-4 units
Foreign Language	1-2 units
Mathematics	3-4 units
Laboratory Science	2-3 units
Social Studies and History	2 units

Students will find it advantageous to have had at least one year each of algebra, biology, chemistry, and physics. English, mathematics, and science are strongly recommended.

University Placement Tests

1. Placement tests offer the student an opportunity to demonstrate his ability to succeed in specified elementary courses and thereby replace them with approved electives.
2. These tests are required for registration in Chemistry 0107, English 0150, and Mathematics 0180 or 0211.
3. Placement tests are scheduled by the Counseling and Testing Office, 329 Mackenzie Hall, (telephone: 577-3400), for several dates prior to registration and should be taken by the student at the earliest possible time in order to assure that results will be available before registration.

PROFESSIONAL CURRICULUM

Enrollment in the professional pharmacy curriculum is limited to applicants who have met the general University admissions requirements and present evidence of professional admissibility and promise of academic and professional competence. The Admissions Committee of the Faculty of Pharmacy will consider the academic record and the Pharmacy College Admission Test (PCAT) scores together with the applicant's aptitude and personal qualifications for the study and practice of pharmacy. A personal interview and letters of recommendation are required. Admission to the professional curriculum is granted only for the fall quarter.

Admission Requirements

Students will be considered for admission to the professional pharmacy curriculum from a college either within Wayne State University or outside the University, or from the general pharmacy curriculum. Minimum requirements for admission to the professional curriculum are:

1. Completion of not less than ninety quarter (or sixty semester) hours of credit;
2. Completion of each of the following required core courses (or their equivalent) with a minimum grade of "C":

Biology 0103	Introductory Biology
Biology 0160	Animal Biology
Biology 0220	Introductory Microbiology
Chemistry 0107, 0108	Principles of Chemistry I, II
Chemistry 0110	General Analytical Chemistry
Chemistry 0224, 0226	Organic Chemistry I, II
Chemistry 0227	Organic Chemistry Laboratory
Economics 0101, 0102	Survey of Economics I, II
English 0150	Freshman Composition
One English "0200" level elective	
Mathematics 0211	Calculus of Functions of One Variable I
Physics 0213-0215	General Physics
Political Science 0101	Introduction to American Government

3. Completion of the Pharmacy College Admissions Test (PCAT) no later than February of the year for which admission is sought.

There is a limit in the number of applicants who can be accommodated in the professional pharmacy curriculum, therefore admission is highly selective. For purposes of evaluating the academic record, a core honor point average is calculated on the grades earned in the required courses listed in 2 (above). A core honor point average of "B" is usually needed to gain admission to the professional curriculum. Additionally, applicants with a cumulative honor point average of less than 2.5 should not anticipate a favorable decision.

All honor point averages are calculated on the basis of the last grade earned in any course.

The Pharmacy College Admissions Test (PCAT) is a new standardized evaluation procedure that has been developed and is similar to the Medical College Admissions Test. It provides admission officers throughout the country with comparative data on an applicant's verbal and quantitative abilities, reading comprehension and science preparation. The PCAT is administered several times each year in the Detroit area as well as at other locations throughout the country. The PCAT must be taken no later than February for fall admission. Applicants are requested to have their scores reported to the College. Application forms and detailed information can be obtained from the Office of the Registrar, College of Pharmacy and Allied Health Professions, 303 Health Sciences Building.

Application

To be considered for admission to the professional curriculum, applicants must submit an *Application for Admission to Undergraduate Professional Programs, College of Pharmacy and Allied Health Professions*. This application is available from, and should be submitted to, the Office of the Registrar, College of Pharmacy and Allied Health Professions, 303 Health Sciences Building.

This application is in addition to the *Application for Undergraduate Admission* or the *Application for Change of Undergraduate College Within Wayne State University* required for those applicants not previously admitted to the general curriculum (see p. 533).

Application Deadline — The professional application deadline is May 1.

POST DEGREE STUDENTS

Students having at least a baccalaureate degree from this or another college of pharmacy may be admitted as post degree students. This rank permits registration in pharmacy courses subject to the approval of the Assistant Dean for Admissions and Student Affairs. Students wishing graduate credit are cautioned not to enroll post-degree. This is an undergraduate classification in which graduate credit may not be earned. Post-degree credits cannot be converted to graduate credit.

UNDERGRADUATE DEGREE REQUIREMENTS

The following general requirements must be satisfied for the degree of Bachelor of Science in Pharmacy:

Residence — a student must have devoted at least three academic years to resident study in an accredited college or colleges of pharmacy, of which the final professional year and last forty-five credits must be taken at the Wayne State University College of Pharmacy and Allied Health Professions.

Honor Point Average — a student must maintain an honor point average of at least 2.0 in total residence credit and in all pharmacy courses. In addition, if a student fails to achieve the minimum 2.0 in professional pharmacy courses by the end of the last quarter of the fifth year, his only recourse will be to repeat professional courses until such time as his professional honor point reaches 2.0.

English Proficiency — a student must obtain a satisfactory score on the Proficiency Examination in Composition. A student who fails this examination must successfully complete English 0208, Composition Workshop. Credit earned in this course does not apply for degree credit.

American Government — all undergraduate students, as a prerequisite to being graduated from Wayne State University, are required to have completed satisfactorily a course in the principles of American government. The Faculty of Phar-

macy includes as a required course in its curriculum Political Science 0101, which will satisfy this requirement.

Curriculum and Program Requirements — a student must complete the curriculum and program requirements, remove any marks of I or Y, and be recommended by the faculty for the degree. The student must complete the required minimum number of credits, elect courses in the proper sequence in the appropriate curriculum shown below, and meet any course prerequisite or corequisite, unless excused by the Dean, the Deputy Dean of Pharmacy, or the Assistant Dean for Admissions and Student Affairs from doing so.

Attendance at Commencement — a student is expected to be present at Commencement exercises.

UNDERGRADUATE CURRICULUM

The undergraduate curriculum in pharmacy consists of a total of five years of academic study and a minimum of 238 credits. These include core curriculum credits required of all pharmacy students and elective courses. Elective credits are to be distributed between twelve credits of professional electives and the remainder in approved electives in the humanities and social sciences, including at least four credits of English at the 0200 level¹. Any electives not shown in the list of "Approved Elective Courses in the Humanities and Social Sciences" on page 551 must be approved by an adviser for the Faculty of Pharmacy in order to be accepted for degree credit. No more than twelve credits in any one elective area will normally be considered for degree credit.

General Curriculum

First Year

1st Quarter		Hours Per Week		
		Class	Lab	Credits
Biology 0103	Introductory Biology	4	3	5
Chemistry 0107	Principles of Chemistry I	5	0	4
Mathematics 0211	Calculus of Functions of One Variable I	4	0	4
Political Science 0101	Introduction to American Government	4	0	4
				17

2nd Quarter

Biology 0160	Animal Biology	4	3	5
Chemistry 0108	Principles of Chemistry II	4	4	5
Economics 0101	Survey of Economics I	4	0	4
English 0150	Freshman Composition	4	0	4
				18

¹ A maximum of four credits in English 0150 will be accepted for degree credit.

3rd Quarter

Chemistry 0110	General Analytical Chemistry	3	6	4
Economics 0102	Survey of Economics II	4	0	4
¹ Elective				4
² English	0200 level course			4
				16

Second Year

4th Quarter

		Hours Per Week		
		Class	Lab	Credits
Chemistry 0224	Organic Chemistry I	4	0	4
Physics 0213	General Physics	4	2	4
¹ Electives				8
				16

5th Quarter

Chemistry 0226	Organic Chemistry II	4	0	4
Chemistry 0227	Organic Chemistry Laboratory	1	9	3
Physics 0214	General Physics	4	2	4
¹ Elective				4
				15

6th Quarter

Biology 0220	Introductory Microbiology	3	4	4
Physics 0215	General Physics	4	2	4
¹ Electives				8
				16

Professional Curriculum

Third Year

7th Quarter

		Hours Per Week		
		Class	Lab	Credits
Interdisciplinary Health Sciences 0310	Human Anatomy	4	1	5
Pharmaceutical Administration 0310	Jurisprudence	3	0	3
Pharmaceutical Administration 0311	Orientation to Pharmacy Investigation	3	0	3
Pharmaceutical Chemistry 0310	Quantitative Pharmaceutical Chemistry	4	0	4
Pharmaceutical Chemistry 0311	Quantitative Pharmaceutical Chemistry Laboratory	1	4	1
Pharmaceutics 0095	Pharmaceutical Calculations	1	0	(1)
				16

8th Quarter

Interdisciplinary Health Sciences 0320	Human Physiology	5	0	5
Interdisciplinary Health Sciences 0321	Human Physiology Laboratory	0	4	1
Pharmaceutical Chemistry 0320	Organic Pharmaceutical Chemistry	3	0	3
Pharmaceutics 0320	Prescription Compounding and Dispensing	3	4	4
Pharmacognosy 0320	Pharmacognosy	3	0	3
				16

9th Quarter

Interdisciplinary Health Sciences 0330	Survey of Social and Organizational Aspects of Health Care	3	0	3
Interdisciplinary Health Sciences 0331	Basic Mechanisms of Disease	3	0	3
Pharmaceutical Chemistry 0330	Pharmaceutical Biochemistry I	3	0	3
Pharmaceutics 0331	Physical Pharmacy and Pharmacy Technology I	3	4	4
Pharmaceutics 0332	Non-Prescription Medication	4	0	4
				17

Fourth Year

10th Quarter

		Hours Per Week		
		Class	Lab	Credits
Pharmaceutical Chemistry 0410	Chemotherapy I	4	0	4
Pharmaceutical Chemistry 0411	Pharmaceutical Biochemistry II	4	0	4
Pharmaceutics 0410	Physical Pharmacy and Pharmacy Technology II	3	4	4
Pharmacology 0410	Pharmacology I	5	0	5
				17

11th Quarter

Pharmaceutical Administration 0421	Pharmaceutical Administration I	3	0	3
Pharmaceutics 0422	Physical Pharmacy and Pharmacy Technology III	3	4	4
Pharmaceutics 0423	Principles of Pharmacokinetics and Biopharmaceutics	4	0	4
Pharmacology 0420	Pharmacology II	4	0	4
				15

¹ For list of approved electives in humanities and social sciences, see page 531.

² English 0208, Composition Workshop, will not satisfy this requirement and is not accepted for degree credit.

12th Quarter

Pharmaceutical Administration 0431	Pharmaceutical Administration II	3	0	3
Pharmaceutical Chemistry 0430	Chemotherapy II	4	0	4
Pharmaceutics 0430	Pharmacokinetic Aspects of Clinical Pharmacy Practice	3	0	3
Pharmacology 0430	Pharmacology III	3	3	4
¹ Elective				3
				17

Fifth Year

13th Quarter

		Hours Per Week		
		Class	Lab	Credits
Pharmaceutics 0510	Case Studies in Drug Therapy I	3	0	3
² Pharmaceutics 0511	Pharmacy Externship	1	35	12
				15

14th Quarter

Pharmaceutics 0520	Case Studies in Drug Therapy II	3	0	3
¹ Electives				12
				15

15th Quarter

Pharmaceutics 0530	Case Studies in Professional Practice	3	0	3
¹ Electives				12
				15

PROFESSIONAL ELECTIVES

Students select a required minimum of twelve credits of professional electives in the last professional year of study.

In addition to the professional electives, students who anticipate graduate study may select from the offerings in the University which will prepare them for their field of study in graduate work, with the approval of their adviser.

Pharmaceutical Administration (P A)

	credits
0610.....Legal Environment and Pharmacy I	3
0611.....Legal Environment and Pharmacy II	3
0612.....Professional Records and Accounting	3
0690.....Directed Study in Pharmaceutical Administration	1-4
0698.....Seminar	1

¹ For a list of approved electives in humanities and social sciences, see page 551. For professional electives, see below.

² Taken by one-third of the graduating class in each quarter of the fifth year.

Pharmaceutical Chemistry (P C)

0620.....Qualitative Drug Analysis	3
0685.....Radiopharmacy	3
0690.....Directed Study in Pharmaceutical Chemistry	1-4
0698.....Seminar	1

Pharmaceutics (PHA)

0664.....Hospital Pharmacy Practice	3
0670.....Health-Care Accessories and Appliances	3
0671.....Special Problems in Professional Practice	3
0676.....Pharmaceutical Manufacturing	3
0681.....Intravenous Therapeutics	3
0682.....Sterile Products	3
0683.....Dermatological Preparations	3
0684.....Special Problems in Hospital Pharmacy Practice	3
0685.....Special Problems in Community Pharmacy Practice	3
0686.....Principles of Pediatric Pharmacy	3
0688.....Mental Health Pharmacy	3
0690.....Directed Study in Pharmaceutics	1-4
0698.....Seminar	1

Pharmacognosy (PCG)

0690.....Directed Study in Pharmacognosy	1-4
0698.....Seminar	1

Pharmacology (PCL)

0689.....Toxicology and Adverse Drug Reactions	3
0690.....Directed Study in Pharmacology	1-4
0698.....Seminar	1

GRADUATE PROFESSIONAL PROGRAM

For complete information regarding graduate rules and regulations, students should consult the Graduate Division section of this bulletin, beginning on page 19. The following additions and amendments pertain to pharmacy students.

The College offers to qualified students a graduate professional program leading to the degree of Doctor of Pharmacy (Pharm. D.).

The Doctor of Pharmacy degree program is a graduate professional program that has been carefully designed to develop clinical pharmacist specialists who will practice their profession as a social institution stressing patient-oriented services, provide professional leadership in the practice of community and hospital pharmacy, and serve in positions in pharmaceutical education involving clinical instruction.

The program has been developed to provide graduates with the education and skills to participate in health care as follows:

1. Monitor the drug therapy of patients for appropriateness and effectiveness of treatment, potential adverse drug reactions, potential compromise of therapy resulting from drug-drug, drug-food and drug-laboratory test interactions, and the stability and availability of the dosage forms selected.
2. Provide drug and drug product information and evaluation to physicians, nurses and other health-care practitioners as well as participation in conducting audits of the effectiveness of drug therapy in order to provide drugs that are safe, effective and as economical as possible.
3. Maintain patient medication profiles of prescribed and non-prescription drugs as a reference information base, by obtaining patient drug histories where appropriate, to be used in conjunction with the patient data base collected by physicians and other health-care practitioners.
4. Increase the effectiveness of drug regimens prescribed by physicians and other primary care practitioners by providing guidance and education to patients and to other health-care professionals on the proper use of prescription and non-prescription drugs, their side effects, contraindications and storage conditions while emphasizing the need for compliance with the drug regimen.
5. Extend the capabilities of physicians in appropriate treatment centers by providing maintenance drug therapy and patient assessment for chronically ill patients by using pre-established treatment protocols developed by physicians in conjunction with pharmacists.

ADMISSION STANDARDS

Each applicant for admission to the professional Doctor of Pharmacy program is carefully reviewed in order to select those students having the academic and professional maturity, competency, and promise required by the program. An evalu-

ation is made of the nature and quality of all previous academic work, including the dates particular courses were completed. The responsibility for deciding whether a student shall be admitted rests with the Admissions Committee for the Doctoral Program.

To qualify for admission, an applicant must have a Bachelor of Science degree in Pharmacy or anticipation of such a degree within one year's time from a college of pharmacy which is accredited by the American Council on Pharmaceutical Education and is a member of the American Association of Colleges of Pharmacy.

Admission is granted only for the fall quarter.

An Official *Application for Admission to the Professional Doctor of Pharmacy Program*, a \$15.00 application fee, and official transcripts from each college or similar educational institution the applicant has attended must be submitted to the Chairman of the Admissions Committee for the Doctor of Pharmacy Program, College of Pharmacy and Allied Health Professions, Wayne State University, Detroit, Michigan 48202, before any firm consideration regarding admission can begin.

The applicant must demonstrate his ability to undertake successfully graduate professional education. If an applicant's honor point average is below 2.6, successful completion of special examinations may be required. The Graduate Record Examination (GRE) is not normally required for admission.

Deficiencies which an applicant might have in the nature or quality of his academic preparation will require successful completion of prerequisite courses as prescribed for the applicant as a condition of his admission.

The ability of the applicant to pursue full-time study is also considered.

ADVISORY COMMITTEE

Each student has the benefit of an Advisory Committee for the conduct of his clinical research investigation. This committee is comprised of a project adviser and at least two members of the Faculty of Pharmacy.

CLINICAL LABORATORY RESOURCES

An important aspect of this program is the opportunity to receive the equivalent of one full year of clinical pharmacy instruction at both hospital and community health-care facilities. The student is placed in an environment where he can interact with patients which maximizes the student's opportunity to learn. Also, he can interact with other health professionals in providing health care on both social and professional planes. Course work in advanced clinical pharmacy and research for the professional doctoral investigation are conducted in facilities in which, for example, the student is given responsibility for the pharmaceutical management of a patient ward. The student will attend daily medical rounds, conferences, and seminars. These facilities are provided through formal affiliation or working arrangements with clinics, extended care facilities and some of the major hos-

pitals in the Metropolitan Detroit area such as Detroit General Hospital, Providence Hospital, Sinai Hospital, Metropolitan Hospital, William Beaumont Hospital, United Hospitals of Detroit, Henry Ford Hospital and Children's Hospital of Michigan. Ambulatory care facilities such as Metropolitan Hospital, Family Health Services, hospital outpatient clinics and community pharmacies provide the student the opportunity to obtain experience in the provision of clinical pharmacy services to ambulatory patients.

PROFESSIONAL DOCTORAL INVESTIGATION IN PHARMACY

Each candidate for the Doctor of Pharmacy degree is required to complete and have approved by his project adviser and Advisory Committee a Professional Doctoral Investigation in Pharmacy which represents an independent study of an approved area of professional intellectual interest.

The objectives of this investigation are to:

1. Develop problem identification, investigative and problem resolution skills and techniques using scientific methodology;
2. Contribute to the data base in clinical pharmacy practice and its literature; and
3. Assist in the scholarly development of clinical pharmacy faculty.

The procedure for completing the research investigation consists of five components which contribute to enhancing the quality of the research and the meaningfulness of the project to the student:

1. Selection of a clinical faculty research adviser and advisory committee and the development of a written research protocol.
2. Completion of an oral defense of the protocol before the clinical faculty as well as other interested faculty and appropriate resource personnel.
3. Performance of the data collection phase of the investigation.
4. Writing of the investigation in thesis format.
5. Completion of a final oral defense of the investigation before the advisory committee and other interested personnel. The completed project is then submitted to the Graduate Officer of the College and is retained in the College library.

Depending on the nature of the clinical research investigation, a substantial amount of clinical training may be acquired by the student in excess of the 1600 contact hours realized in the Clinical Pharmacy Clerkship required in the program.

COMPETENCY-BASED FINAL EXAMINATION

During the final quarter of the program, each candidate for the Doctor of Pharmacy degree must successfully complete a series of written and oral examinations. These examinations will assist the College in determining that graduates from the program have developed the required level of competency.

GRADUATE PROFESSIONAL DEGREE REQUIREMENTS

The following general requirements must be satisfied for the degree, Doctor of Pharmacy:

Residence — a student must have devoted at least one academic year to full-time study at Wayne State University including satisfactory completion of at least forty-eight credits subsequent to undergraduate study in pharmacy in accordance with the rules and regulations of the doctoral program of the College.

Honor Point Average — a student must maintain an honor point average of at least 3.0 in the last forty-eight credits of required courses undertaken for credit toward the professional doctoral degree in pharmacy.

Curriculum and Program Requirements — a student must complete the curriculum and program requirements of the College and be recommended by the faculty for the degree. Courses must be elected in the proper sequence and any course prerequisites or corequisites must be met unless the student is excused from doing so by the Doctor of Pharmacy Program Committee. Required credits must be earned within not more than two calendar years for applicability to the Doctor of Pharmacy degree. The coordinator of Clinical Education and Research Programs must approve and sign each Program Request.



GRADUATE PROFESSIONAL CURRICULUM

Graduate professional work leading to the Doctor of Pharmacy degree is predicated on the current five-year baccalaureate pharmacy curriculum of the College of Pharmacy and Allied Health Professions. Students who have pursued a baccalaureate program other than this are required to elect such additional course work as may be necessary to make possible successful performance in the program. Such requirements are specified by the Admissions Committee for the Doctor of Pharmacy Program at the time of application to the program. Students wishing to continue with the professional doctorate work may indicate their intention to do so as early as the end of their fourth year of baccalaureate study.

The curriculum consists of a combination of lectures, seminars, and clinical experiences (the clinical pharmacy practice courses) which focus upon intimate contact with patients and members of the health-care team.

Required Courses

	<i>credits</i>
Pharmaceutics 0760	Biostatistics and Research Design 5
Pharmaceutics 0767	Pharmacokinetic Principles in Drug Therapy 4
Pharmaceutics 0773	Principles of Patient Assessment 1
Pharmaceutics 0776	Social Policies and Health Care 3
Pharmaceutics 0777	Disease Processes and Therapeutics 12
Pharmaceutics 0780	Clinical Pharmacy Clerkship 16
Pharmaceutics 0795	Professional Doctoral Investigation 3
Sociology 0671	Introduction to Medical Sociology 4
	48

Elective Courses

The following is a partial list of approved electives available:

Biology 0507	Genetics 5
Biology 0567	Endocrinology 4
Chemistry 0660, 0662, 0664	Biochemistry I, II, III 9
Computer Science 0501	Computers and Research 4
Pharmaceutical Chemistry 0685	Radiopharmacy 3
Pharmaceutics 0681	Intravenous Therapeutics 3
Pharmaceutics 0682	Sterile Products 3
Pharmaceutics 0683	Dermatological Preparations 3
Pharmaceutics 0686	Principles of Pediatric Pharmacy 3
Pharmacology 0689	Toxicology and Adverse Drug Reactions 3
Pharmacology 0710, 0711	Advanced Pharmacology I, II 6
Pharmaceutics 0770, 0771	Organization of Pharmaceutical Services in Health-Care Facilities I, II 6
Pharmaceutics 0794	Clinical Pharmacy Seminar 1

It is suggested that Doctor of Pharmacy candidates enroll in as many elective courses as possible; however, elective course work is not required for successful completion of the program.

GRADUATE PROGRAMS

For complete information regarding graduate rules and regulations, students should consult the Graduate Division section of this bulletin, beginning on page 19. The following additions and amendments pertain to pharmacy graduate students.

The Faculty of Pharmacy offers courses leading to the degrees of Master of Science and Doctor of Philosophy.

The Faculty of Pharmacy offers a graduate program leading to the degree of Master of Science with majors in hospital pharmacy, pharmaceutical administration, pharmaceutical chemistry, pharmaceutics, pharmacognosy, and pharmacology.

In the Doctor of Philosophy program, the courses and general plan for the dissertation research are arranged with candidates by a committee of advisers, with majors in all of the above fields except hospital pharmacy.

GRADE REQUIREMENTS AND PREREQUISITES

In the selective admission of graduate students, preference is given to students who have achieved superior undergraduate scholastic records and who evidence superior abilities. If a student's undergraduate preparation is considered deficient for advanced work in his graduate major field, additional work may be required at the undergraduate level. All prerequisite credits must be earned prior to or concurrent with the first graduate credits.

RESIDENCE

Residence requirements are specified in all graduate degrees in order to insure a concentration of study and to insure the student's ability to synthesize the knowledge acquired in the courses which constitute his degree program. In the master's degree program at least thirty-nine credits, including the essay or thesis, must be earned in residence at Wayne. The requirement of one year for Ph.D. residence is normally met by completion of three units (normally twelve quarter credits) of course work in each of three successive quarters. At least half of the credits in course work in each of the three quarters must be other than dissertation or directed study.

THE MASTER'S DEGREE

Students enrolled in master's degree programs are expected to file a *Plan of Work* by the time twelve graduate credits have been earned. Candidacy must be established by the time eighteen graduate credits have been earned; otherwise subsequent registration is denied.

In the Master's degree program the minimum requirement for the degree is forty-eight credits — under either Plan A or Plan B as follows:

Plan A requires a minimum of thirty-six credits in course work plus a thesis.

Plan B requires a minimum of forty-five credits in course work plus an essay.

Plan B is authorized only in selected areas and may be taken only with the consent of the College Graduate Committee.

FINAL MASTER'S EXAMINATION

At least twelve credits of work in the major field, in addition to the essay or thesis, must be in courses open only to graduate students (numbered 0700 and above). A final examination covering course work and the thesis or essay is required of all candidates. The purpose of the requirement is to give the candidate an opportunity to demonstrate that he can organize, synthesize, and interpret knowledge gained from his course work, and can express himself clearly and constructively. While not required for the master's degree, a reading knowledge of either German or French is highly desirable.



ACADEMIC PROCEDURES

For complete information regarding academic rules and regulations of the University, students should consult the General Information section of this bulletin, beginning on page 5. The following additions and amendments pertain to pharmacy students.

CREDITS

A credit (credit hour) is defined as one class hour requiring a minimum of two hours of preparation per week carried through a quarter. A four hour laboratory period is generally regarded as the equivalent of one class hour.

Some of the early course work of a student attempting to complete degree requirements may become out-of-date, because of a protracted interruption in his education or irregular registration over an extended period of time. Such determinations are made by the College and a student may be required to take refresher work or otherwise demonstrate his preparation for advanced courses.

ACADEMIC AND PROFESSIONAL PROGRESS

The College expects its students to develop professional competence and to satisfy the same high standards of exemplary character, appearance, and ethical conduct expected of professional pharmacists.

To merit confidence and esteem, both personally and in the health care professions, appropriate dress and demeanor are expected of each student in the academic and professional program in pharmacy. A student may be excluded from the College at any time for an unsatisfactory academic or professional record, for irresponsible attendance, or other failures to diligently pursue the academic and professional program.

PROBATION

Probationary status is a warning that, unless his record or performance improves, the student is subject to dismissal from the College.

Academic Probation — A student in the general or professional curriculum is placed on *academic probation* whenever his cumulative honor point average falls below 2.0. While on academic probation, a student may not represent the College in student activities. The report of final grades sent to a student is notice of academic probation.

Terminal Probation — A student in the General Curriculum who has been on academic probation has his status changed to *terminal probation* if his cumulative honor point average has not reached 2.0 after two quarters. He may be permitted to register for courses one more quarter but must carry a minimum of twelve credit hours and achieve an honor point average for that quarter of at least 2.20 in order to remain a student in the College.

Professional Probation — A student in the Professional Curriculum (i.e., third, fourth or fifth year) is placed on *professional probation* when his honor point average in professional courses falls below 2.0. Failure in a professional course or prolonged continuance on academic or professional probation may be considered sufficient reason to dismiss a student from the professional curriculum.

Special Probation — A student in the General or Professional Curriculum may be placed on *special probation* despite an acceptable honor point average when, in the judgment of the Sub-Committee on Academic and Professional Progress, he has not progressed satisfactorily in developing professional competence. Such probation becomes effective from the date of the Committee decision and is continued until the Committee restores the student to regular status or refuses him the privilege to register in the College.

The undergraduate student on either academic or professional probation regains regular standing when both his cumulative honor point average and his professional honor point average are at least 2.0.

A student who has been placed on probation, or who has been refused the privilege of registering in the College, may request a reconsideration of his status when extenuating circumstances exist which might be unknown to the Sub-Committee on Academic and Professional Progress. If this request is denied, the student may pursue the following line of appeal: to the Curriculum and Programs Committee (Faculty of Pharmacy); and ultimately, to the University Provost.

Readmission Following an Interruption in Residence

Undergraduate students whose attendance in the pharmacy curriculum has been interrupted for two or more consecutive quarters are required to apply for readmission at the Office of the Registrar, College of Pharmacy and Allied Health Professions, 303 Health Sciences Building. Deadline dates for such applications are the same as those for regular admission to the University.

ATTENDANCE

Regularity in attendance and performance is necessary for success in college work. At the beginning of each course the instructor will announce the specific attendance required of students as part of the successful completion of the course.

STUDENT CONDUCT

Every student is subject to published regulations governing student activities and student behavior. When there are reasonable grounds to believe that a student has acted in a manner contrary to law and the mores of the community, such student may be disciplined. Such discipline may include suspension or dismissal, but no dismissal will be directed without reasonable opportunity for an appropriate hearing.

Students are responsible for all published or posted notices of official information or procedure.

DEAN'S LIST OF HONOR STUDENTS

A regular undergraduate student who achieves a quarter honor point average of 3.5 or more is, upon vote of the Academic and Professional Progress Committee, notified by the Dean of his citation for distinguished scholarship and professional progress. The student's name is placed on the Dean's List of Honor Students.

GRADUATION WITH DISTINCTION

A candidate eligible for the degree of Bachelor of Science in Pharmacy may receive a special diploma "with distinction" or "with high distinction" under the following conditions:

Distinction — An honor point average of 3.3 if the candidate has earned at least 150 credits in residence; 3.4 if between 90 and 149 credits.

High Distinction — An honor point average of 3.6, if the candidate has earned at least 150 credits in residence; 3.7 if between 90 and 149 credits.

The Honors Committee of the College will examine distinctly extraordinary cases in which the application of the foregoing criteria works a great injustice, and will make recommendations to the faculty on graduation with distinction or high distinction.



FINANCIAL AIDS

SCHOLARSHIPS AND AWARDS

If students have problems in meeting the costs of higher education, the University will make every effort to assist in several ways:

Scholarships—Outright gifts of money awarded to students on the basis of academic achievement, financial need, and leadership qualities.

Grants-in-aid—Outright gifts of money awarded primarily on the basis of financial need.

Awards—Outright gifts of money awarded to students who participate in extra-curricular activity programs of the University.

Loans—Grants of money made with the provision that they be repaid.

Information concerning the aid programs of the University can be found in the "Financial Aids Bulletin" which is available on request.

GRADUATE AID

See "Graduate Financial Aid," page 28.

LOANS

Pharmacy students are eligible for student loans and tuition loans administered by the University Office of Scholarships and Financial Aids. In addition to these, the following loans are also available to undergraduate students of pharmacy.

Roland T. Lakey Student Loan Fund—A loan fund was established in honor of Dean Emeritus Roland T. Lakey by the Pharmacy Alumni Association, Rho Pi Phi Fraternity, and friends of Dean Lakey. Pharmacy students are eligible for loans from this fund when students have completed eighteen credits in the College with an honor point average of at least 2.2. Application forms and other information concerning this fund may be obtained at the University Office of Student Financial Aids.

Max Milstein Memorial Loan Fund—A memorial fund established by the family and friends of Mr. Max Milstein, alumnus of the College, to provide loans to students of the College who are in good academic standing, and intended for fees, including tuition, books, and supplies. Available to undergraduate and graduate students.

Morris Rogoff Student Loan Fund—The family and friends of Mr. Morris Rogoff, a dedicated alumnus of the College, have established a loan fund in his memory. These funds will provide financial assistance for pharmacy students in the undergraduate and graduate programs and they are intended primarily for fees, books and supplies.

HEALTH PROFESSIONS EDUCATIONAL ASSISTANCE

The Federal Health Professions Education Assistance Amendments of 1971 authorized a scholarship program enabling qualified students from low-income families to undertake the undergraduate pharmacy program. Any student who is eligible to enroll in any of the last four years of the curriculum of the College, is a permanent resident of the United States, and is in need of financial aid may apply. Transfer students are eligible upon acceptance by the College.

In addition to the federally sponsored scholarship program, loan assistance is also available to qualified students enrolled in the College. The federally sponsored loan assistance provides opportunities for the education of needy students through low-interest loans for pursuing study in pharmacy.

Through Health Professions Educational Assistance, a student may receive as much as \$3500 for each academic year he is enrolled in the College.

Information and application forms for a Health Professions Pharmacy Scholarship, or for loan assistance, are obtainable from the University Office of Scholarships and Financial Aids.

SCHOLARSHIPS

Scholarships have been established through contributions to the University by individuals and organizations interested in encouraging worthy students to continue their studies. The scholarships differ greatly in their specifications; some stress high scholarship while others place emphasis on financial need or campus citizenship. In addition, Wayne State University awards scholarships in the form of remission of a substantial portion of the tuition fees to students of superior academic achievement.

College of Pharmacy and Allied Health Professions students are eligible for general scholarships and loans available to all University students. Applications for financial aid should be addressed to the Office of Scholarships and Financial Aids, Wayne State University, Detroit, Michigan 48202.

In addition to the above general scholarships and loans of the University, the following scholarships are available to pharmacy students in the professional curriculum. Applications are available from, and should be submitted to, the Assistant Dean for Admissions and Student Affairs.

Aesculapian Pharmaceutical Association Scholarship—A fund, established by the Aesculapian Pharmaceutical Association and its auxiliary, provides assistance to a worthy student in pharmacy. Selections are made on the basis of academic achievement and financial need.

Alpha Zeta Omega Scholarship—A fund established by Alpha Zeta Omega Pharmaceutical Fraternity provides assistance to students entering the first year of the pharmacy program. Where possible, preference is given to residents of Wayne, Oakland, or Macomb Counties in Michigan.

American Foundation for Pharmaceutical Education Scholarship—Third, fourth, and last professional year students in

the College, who have established evidence of competency and scholastic ability, are eligible for financial aid through American Foundation for Pharmaceutical Education Scholarships.

Arnold Pharmacies Scholarship — An annual scholarship is presented to a third, fourth or last professional year student in the College on the basis of financial need and scholastic achievement. Eligible students shall be residents of Michigan expressing an interest in community pharmacy practice.

Blizzard and Associates Scholarship — A fund established by Blizzard and Associates available to a student in the College who has demonstrated scholastic achievement, professional character, leadership, and is in financial need.

Pharmacy Alumni Association Scholarship Fund — A fund is maintained by the Pharmacy Alumni Association to assist financially needy and worthy pharmacy students.

John W. Dargavel Foundation Scholarships — Funds are available through the John W. Dargavel Foundation for third, fourth, and last professional year students in the College. These scholarships are based upon scholastic achievements, character, leadership, and financial need.

Fairlane Pharmacy Scholarship — A fund established by Fairlane Pharmacies provides partial tuition for two pharmacy students each year. Preference is given to students residing in Warren, Michigan.

Greater Northwest Pharmacist Association Scholarship — A scholarship is awarded annually to a student in good standing in the third, fourth, or last professional year of the pharmacy program who shows qualities of character and leadership and is in financial need.

John Helfman Pharmacy Fund — An endowment fund has been established by the estate of John Helfman to be used for the benefit of the College, including scholarship support for pharmacy students.

Martin Barr Rho Pi Phi Scholarship — A \$100 check is awarded annually by Rho Pi Phi Fraternity to a fourth year student who, in the judgment of the faculty and a fraternity committee, has distinguished himself scholastically and professionally.

Frank O. Taylor Scholarship of Wayne State University (Pharmacy) — An endowment fund has been established by the estate of Frank O. Taylor to provide scholarship funds for students in their last year of undergraduate work or in the graduate program. Eligible students shall be only those specializing in Industrial (Manufacturing) Pharmacy.

PRIZES AND AWARDS

American Pharmaceutical Association Certificate — A certificate of commendation is issued annually by the American Pharmaceutical Association to the graduating student who has contributed most in developing membership and encouraging participation in the activities of the student chapter of the College.

Asklepios Key Award — A distinctive recognition key is presented annually by Mu Omicron Pi Chapter of Kappa Psi Pharmaceutical Fraternity, to the member who has been most active in the interests of the fraternity.

Bristol Awards — An appropriate book is awarded annually to the graduating student who, in the judgment of the faculty, has shown the greatest professional growth.

An appropriate book is awarded annually to a Doctor of Pharmacy candidate who, in the judgment of the faculty, has shown overall excellence in the clinical practice component of the curriculum.

Detroit Alumni Rho Pi Phi Award — A \$50 check is presented annually to the Rho Pi Phi Fraternity member who has two years residence in the College of Pharmacy and Allied Health Professions, has attained the highest scholastic average of all similarly eligible students, and has distinguished himself in leadership and contributions to the fraternity.

Edward Baron Award — A set of metric and apothecary weights is awarded annually by Phi Chapter of Alpha Zeta Omega Pharmaceutical Fraternity to the second year student with the highest scholastic average based on a minimum of forty-five quarter hours in residence.

Ethel J. Heath Scholarship Key — A distinctive honor key is awarded by Omicron Chapter of Lambda Kappa Sigma International Pharmaceutical Sorority, to each graduating member in good standing who has attained a cumulative scholastic rank in the upper ten per cent of all candidates eligible for graduation.

Johnson & Johnson Award — A distinctive replica of an antique Revolutionary War mortar and pestle is awarded annually to the graduating student who, in the judgment of the faculty, exhibits exceptional interest, aptitude, and achievement in pharmaceutical administration.

Kappa Psi Graduate Chapter Award — A watch is awarded annually by the Detroit Graduate Chapter of Kappa Psi Pharmaceutical Fraternity to the graduating student with the highest scholastic average in the professional courses taken in the College.

Kappa Psi Pharmaceutical Fraternity Award — The name of the graduating member of Mu Omicron Pi Chapter of Kappa Psi Pharmaceutical Fraternity who attains the highest scholastic average for the entire College program is engraved annually on a recognition plaque and he is presented a savings bond by the fraternity.

Kappa Psi Pharmaceutical Fraternity Certificate of Appreciation — A recognition certificate is presented by Mu Omicron Pi Chapter of Kappa Psi Pharmaceutical Fraternity, to a graduating member of the fraternity who has demonstrated interest in the fraternity and maintained a good scholastic average.

Kappa Psi Pharmaceutical Fraternity Grand Council Award — A distinctive recognition key and certificate are awarded by Kappa Psi Pharmaceutical Fraternity to a member of the fraternity when he attains the highest scholastic average in his College graduating class.

Kappa Psi Scholarship Honors Certificate — The Scholarship Honors Certificates of Kappa Psi Pharmaceutical Fraternity are fourth professional year and last professional year awards to students who have been members of the fraternity for a minimum of one year and who have achieved a scholastic average of at least B in the past full year of academic work as determined in the first half of the fourth professional year, and in the first half of the last professional year of the curriculum.

Lambda Kappa Sigma Recognition Key — A recognition key is presented by Omicron Chapter of Lambda Kappa Sigma International Pharmaceutical Fraternity when, in the opinion of the fraternity, a graduating fraternity member has displayed distinguished service to the fraternity and College, and is in good standing academically and professionally.

The Lilly Achievement Award — Upon recommendation of the faculty, a gold medal encased in a suitable plastic mounting is awarded annually by Eli Lilly and Company, to a graduating student for superior scholastic and professional achievement, leadership qualities, and professional attitude.

McKesson-Robbins Award — A suitably inscribed plaque and gavel is presented to the incoming president of the Student Chapter, American Pharmaceutical Association — Michigan State Pharmaceutical Association.

Medical Arts Award — A distinctive trophy is awarded annually by the Medical Arts Pharmacy to the graduating student who has done superior work in dispensing and who stands high in all subjects in the curriculum.

Merck Award — Two sets of books consisting of The Merck Index and The Merck Manual are awarded annually, one to the graduating student attaining the highest average in the overall College program; the other to the graduating student attaining the highest average in the pharmacology and pharmacotherapeutics courses, except that in the event that the same individual qualifies for both awards, the second award will be presented to the graduating student with the second highest average in the overall College program.

Perry Pharmacy Achievement Award — A \$100 check is award annually by Perry Pharmacies, Inc. to the fifth year student who has earned the highest scholastic average in the area of pharmaceutical administration.

Phi Delta Chi Alpha Eta Alumni Award — Each year the name of the graduating member of Alpha Eta Chapter of Phi Delta Chi Fraternity who attains the highest scholastic average of all such eligible graduating students is engraved on a plaque, which is presented to the student by the fraternity.

Phi Delta Chi Award — A \$100 check is awarded annually by the Phi Delta Chi Fraternity to a fourth year student in the College, selected from at least three nominees in the top twenty-five percent of their class recommended by the faculty, and determined by the awards committee of the fraternity to have demonstrated potential leadership in intra-professional activities by his fourth year in the College.

Phi Delta Chi Man of the Year Award — Annually, the name of the graduating members of Alpha Eta Chapter of Phi

Delta Chi, who has been selected by the chapter for leadership, service to the fraternity, and character, while maintaining appropriate scholarship, is engraved on an appropriate plaque.

Rexall Award — A mortar and pestle trophy is awarded by the Rexall Drug Company to a graduating student who has distinguished himself in co-curricular activities in the College.

Smith, Kline and French Laboratories Award — A plaque is presented annually to a graduating senior student in recognition of superior achievement in clinical pharmacy practice.

The Upjohn Award — Awarded annually to the graduating senior who, in the judgment of the faculty, has been most active in off-campus public service activities.

COURSES OF INSTRUCTION¹

Interdisciplinary Health Sciences (IHS)

- *0310. (ANA 0310) Human Anatomy. Cr. 5.**
Prereq: BIO 0160. Survey course in gross human anatomy with basic histology and embryology. Self-instructional laboratory using human cadaver material.
- *0320. Human Physiology. Cr. 5.**
Prereq: IHS 0310. Open only to health science majors. Human physiology covering the function of all organ systems for students in health-related professions.
- *0321. Human Physiology Laboratory. Cr. 1.**
Coreq: IHS 0320. Laboratory exercises to accompany Interdisciplinary Health Sciences 0320.
- *0330. Survey of Social and Organizational Aspects of Health Care. Cr. 3.**
Identification of health needs, wants and desires; examination of personnel and facilities, health-care delivery systems, costs of health care, and public and private agencies; evaluation of cost and quality control and analysis of health insurance proposals.
- *0331. Basic Mechanisms of Disease. Cr. 3.**
Prereq: IHS 0320; consent of adviser. Structural and functional changes of body tissues and organs in disease states. (Former Pharmacology 0330)

Pharmaceutical Administration (P A)

- *0310. Jurisprudence. Cr. 3.**
Prereq: admission to professional curriculum. Various state and federal laws and regulations affecting pharmacy practice.
- 0311. Orientation to Pharmacy Investigation. Cr. 3.**
Prereq: admission to professional curriculum. Introduction to design, analysis and evaluation of pharmacy research and literature. (Former Pharmaceutics 0318)
- *0421. Pharmaceutical Administration I. Cr. 3.**
Prereq: P A 0310. Managerial, social and economic factors affecting the delivery of pharmaceutical services.
- *0431. Pharmaceutical Administration II. Cr. 3.**
Prereq: P A 0421. Continuation of Pharmaceutical Administration 0421.
- 0610. Legal Environment in Pharmacy I. Cr. 3.**
Prereq: last professional year standing and consent of instructor. Formulation, interpretation, performance and discharge of contracts with resulting regulation of business, professional and trade practices in pharmacy. (Former Pharmaceutical Administration 0420)
- 0611. Legal Environment in Pharmacy II. Cr. 3.**
Prereq: last professional year standing and consent of instructor. Substantive federal and state drug control law, and legal principles underlying civil liability relating to drugs. (Former Pharmaceutical Administration 0430)

0612. Professional Records and Accounting. Cr. 3.
Prereq: consent of instructor. Principles and practices involving operating and financial records or reports of a business. Medical or pharmaceutical reports regarding patient health.

0690. Directed Study in Pharmaceutical Administration. Cr. 1-4 (Max. 4).
Open only to undergraduates with consent of instructor.

0698. Seminar. Cr. 1 (Max. 3).
Prereq: open only to undergraduates with consent of instructor. Reports and discussions on current literature and recent advances in the field. Assigned topics presented by students.

0730. Marketing Drug Products. Cr. 4.
Prereq: consent of instructor and adviser. Principles which underlie marketing of drug products; marketing channels, agencies, institutions, functions, policies and practices; comparison and contrast of business enterprises, hospitals and other eleemosynary corporations. Distributions through government agencies.

0731. Community Practice. Cr. 4.
Prereq: consent of instructor and adviser. General principles, types of terminal distributors, policies and procedures, competition, promotion and public health.

0732. Pharmacy Management I. Cr. 4.
Prereq: consent of instructor and adviser. Principles of management, including operation; comparison and contrast of policies and procedures of various types of pharmacies.

0733. Pharmacy Management II. Cr. 4.
Prereq: P A 0732. Continuation of Pharmaceutical Administration 0732.

0740. Federal Food and Drug Control. Cr. 3.
Open to students with baccalaureate degrees in any field with consent of instructor. History, philosophy, requirements, administration and enforcement of the Federal Food, Drug, and Cosmetic Act; its impact on industry, health professions, and consumers in terms of economics and public health.

0750. Social Aspects of Health Care. Cr. 3.
Prereq: consent of instructor. Legislative, political, and socio-economic issues or factors affecting practice, procedure, and public policy in the providing of health-care services by those human service professions concerned.

0798. Seminar. Cr. 1-2 (Max. 4).
Prereq: consent of adviser. Reports and discussions by students and members of the staff concerning current developments in the field of pharmaceutical administration.

0799. Master's Essay Direction. Cr. 3.
Prereq: consent of adviser.

0860. Special Topics in Pharmaceutical Administration. Cr. 3 (Max. 9, M.S.; Max. 18, Ph.D.).
Prereq: consent of instructor. Recent developments in pharmaceutical administration. Topics under investigation and of current interest offered in different quarters.

0895. Research in Pharmaceutical Administration. Cr. 3-6 (Max. 9, M.S.; Max. 18, Ph.D.).
Prereq: consent of instructor. Laboratory work employing some of the modern techniques available in pharmaceutical administration, including the application of basic principles to graduate study and research in pharmaceutical administration.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

0899. Master's Thesis Research and Direction.
Cr. 1-12 (12 required).
Prereq: consent of adviser.

0999. Doctoral Dissertation Research and Direction.
Credits to be arranged.
Prereq: consent of doctoral adviser.

Pharmaceutical Chemistry (P C)

***0310. Quantitative Pharmaceutical Chemistry. Cr. 4.**
Prereq: admission to professional curriculum. The determination and quality control of official medicaments. Topics include gravimetric, volumetric, special and instrumental methods.

***0311. Quantitative Pharmaceutical Chemistry Laboratory. (1,4). Cr. 1.**
Prereq. or coreq: P C 0310. Laboratory techniques utilized in major types of "official" gravimetric, volumetric and instrumental assays.

***0320. Organic Pharmaceutical Chemistry. Cr. 3.**
Prereq: P C 0310, 0311. Discussion of organic medicinals within the framework of the physical and chemical properties of the compounds and the significance of these for pharmacological actions, for stability, and storage. Structure-activity relationships are considered.

***0330. Pharmaceutical Biochemistry I. Cr. 3.**
Prereq: IHS 0320; P C 0320; PCG 0320; coreq: IHS 0331. Survey of biological chemistry; mechanisms of action of drug molecules and other facets pertinent to the pharmaceutical sciences.

***0410. Chemotherapy I. Cr. 4.**
Prereq: IHS 0331; P C 0330; PHA 0332; PCG 0320. Drug therapy of infectious diseases encompassing a review of the pathological states, causative agents, the chemistry, mode of action, adverse effects, major contraindications, usual dosage schedules of specialty products available.

***0411. Pharmaceutical Biochemistry II. Cr. 4.**
Prereq: IHS 0331; P C 0330. Continuation of Pharmaceutical Chemistry 0330.

***0430. Chemotherapy II. Cr. 4.**
Prereq: P C 0410, 0411; PCL 0420. Chemotherapy of neoplastic diseases encompassing a review of oncology, the chemistry, mode of action, adverse effects, major contraindications, usual dosage schedules of specialty products available.

0620. Qualitative Drug Analysis. (2,3). Cr. 3.
Prereq: P C 0310, 0311; open only to undergraduates with consent of instructor. Spectral and chromatographic techniques used in identification of medicinal agents. Operation of infrared, ultraviolet and nuclear magnetic resonance spectrophotometers.

0685. Radiopharmacy. Cr. 3.
Prereq: last professional year standing. Fundamentals of radiopharmacy with particular emphasis on the diagnostic and therapeutic applications of isotopes as well as a general survey of the numerous non-medical applications of radioactive pharmaceuticals.

0690. Directed Study in Pharmaceutical Chemistry.
Cr. 1-4 (Max. 4).
Open only to undergraduates with consent of instructor.

0698. Seminar. Cr. 1 (Max. 3).
Open only to undergraduates with consent of instructor. Reports and discussions of current literature and recent advances in the field. Assigned topics presented by students.

0702. Fundamentals of Drug Design. Cr. 3.
Prereq: consent of instructor. Basic mechanisms of organic reactions as they relate to an understanding of drug design and synthesis.

0705. Chemistry of Natural Products. Cr. 3.
Prereq: consent of instructor. Occurrence, identification, structure, synthesis, and biogenesis of terpenes, steroids, and alkaloids with emphasis on pharmacologically important substances.

0798. Seminar. Cr. 1-2 (Max. 4).
Prereq: consent of adviser. Topics assigned in the fields of interest to pharmacy are presented by students and members of the staff.

0820. Physical Methods for Structure Elucidation of Medicinals. Cr. 3.
Prereq: graduate standing and consent of instructor. A discussion of new physical methods used to determine the structure of natural and synthetic medicinal agents.

0860. Special Topics in Pharmaceutical Chemistry. Cr. 3 (Max. 9, M.S.; Max. 18, Ph.D.).
Prereq: consent of instructor. Recent developments in medicinal chemistry. Topics under investigation and of current interest offered in different quarters.

0895. Research in Pharmaceutical Chemistry. Cr. 3-6 (Max. 9, M.S.; Max. 18, Ph.D.).
Prereq: consent of instructor. Laboratory work employing some of the modern techniques available in pharmaceutical chemistry, including the application of basic principles to graduate study and research in pharmaceutical chemistry.

0899. Master's Thesis Research and Direction. Cr. 1-12 (12 required).
Prereq: consent of adviser.

0999. Doctoral Dissertation Research and Direction.
Credits to be arranged.
Prereq: consent of doctoral adviser.

Pharmaceutics (PHA)

***0095. Pharmaceutical Calculations. Cr. 1.**
No degree credit. Prereq: admission to professional curriculum. Offered for S and U grades only. The application of the systems of weights and measures and mathematical calculations involved in pharmaceutical procedures and practice. (Former Pharmaceutics 0317)

***0320. Prescription Compounding and Dispensing. (3,4). Cr. 4.**
Prereq: P A 0310, 0311; PHA 0095. Elements of prescription compounding and dispensing; emphasis on those dosage forms not requiring extensive theoretical background for their preparation.

- *0331. Physical Pharmacy and Pharmacy Technology I.**
(3,4). Cr. 4.
Prereq: P C 0310, 0311; PHA 0320. A discussion of physiochemical principles which form the basis for the preparation of pharmaceutical liquid dosage forms.
- *0332. Non-Prescription Medication. Cr. 4.**
Prereq: IHS 0320; P C 0320; PCG 0320; coreq: P C 0330; IHS 0331. A discussion of various therapeutic classes of non-prescription medication with particular reference to rationale for use, products available, comparative effectiveness and contraindications.
- *0410. Physical Pharmacy and Pharmacy Technology II.**
(3,4). Cr. 4.
Prereq: PHA 0331. A discussion of physiochemical principles which form the basis for the preparation of pharmaceutical disperse systems.
- *0422. Physical Pharmacy and Pharmacy Technology III.**
(3,4). Cr. 4.
Prereq: PHA 0410. A discussion of physiochemical principles which form the basis for the preparation of pharmaceutical solid dosage forms and to achieve specific objectives in the preparation of various pharmaceutical dosage forms.
- *0423. Principles of Pharmacokinetics and Biopharmaceutics.**
Cr. 4.
Prereq: P C 0410, 0411; PHA 0410; PCL 0410. Pharmacokinetics of drug absorption, distribution, metabolism, and excretion and applications of pharmacokinetic principles in understanding drug dose-response relationship, drug bioavailability from pharmaceutical dosage forms, drug dosage regimen design, and possible drug-drug interactions in patients.
- *0430. Pharmacokinetic Aspects of Clinical Pharmacy Practice.**
Cr. 3.
Prereq: PHA 0423. Utilization of pharmacokinetic theory in the interpretation and evaluation of clinical literature. Application of these principles in drug therapy. Lectures, library, and discussion.
- *0510. Case Studies in Drug Therapy I. Cr. 3.**
Prereq: P C 0430; PCL 0430. Case studies illustrating the principles of monitoring drug therapy and the application of rational therapeutics. (Former Pharmaceutics 0564)
- *0511. Pharmacy Exteroship. Cr. 12.**
Open only to undergraduate students with last professional year standing. Practice experience in community pharmacies, hospitals and other health-care facilities. (Replaces former Pharmaceutics 0672, 0673 and 0674)
- *0520. Case Studies in Drug Therapy II. Cr. 3.**
Prereq: PHA 0510. Continuation of Pharmaceutics 0510.
- *0530. Case Studies in Professional Practice. Cr. 3.**
Prereq: last professional year standing. Case studies illustrating situations requiring problem solving and decision making techniques.
- 0664. Hospital Pharmacy Practice. Cr. 3.**
Prereq: last professional year standing. Introduction to pharmacy practice in the hospital setting. (Former Pharmaceutics 0558)
- 0670. Health-Care Accessories and Appliances. Cr. 3.**
Prereq: last professional year standing. Review of the availability and applications of surgical appliances and other health-care devices used in patient-care.
- 0671. Special Problems in Professional Practice. Cr. 3.**
Prereq: last professional year standing; open only to undergraduate students. Offered for S and U grades only. Discussion of current problems affecting professional pharmacy practice.
- 0676. Pharmaceutical Manufacturing. Cr. 3.**
Prereq: last professional year standing. The procedures employed in the manufacture of pharmaceuticals.
- 0681. Intravenous Therapeutics. Cr. 3.**
Prereq: last professional year standing. The physiology of fluid balance, fluid balance abnormalities, acid-base balance, treatment of fluid abnormalities, maintenance requirements, electrolyte replacement, and diseases commonly associated with fluid imbalance.
- 0682. Sterile Products. (2,3). Cr. 3.**
Prereq: last professional year standing. An introduction to the principles, techniques, and equipment employed in the manufacture of sterile products.
- 0683. Dermatological Preparations. Cr. 3.**
Prereq: last professional year standing. Discussion of common skin disorders, their treatment, and the formulation of topical pharmaceuticals and hypo-allergenic cosmetics.
- 0684. Special Problems in Hospital Pharmacy Practice. Cr. 3.**
Prereq: PHA 0664. Discussions in depth of current professional problems relating to the distribution, use, and control of drugs in hospitals and related health-care facilities.
- 0685. Special Problems in Community Pharmacy Practice. Cr. 3.**
Prereq: last professional year standing. Discussion in depth of current professional problems in community pharmacy practice.
- 0686. Principles of Pediatric Pharmacy. Cr. 3.**
Prereq: last professional year standing. Common pediatric problems and diseases including posology, drug administration, poisonings, cystic fibrosis, sickle cell anemia, placental transfer of drugs and teratology.
- 0688. Mental Health Pharmacy. Cr. 3.**
Prereq: last professional year standing. Classification of mental disorders, signs and symptoms associated with various forms of mental illness and various drug regimens used in treatment.
- 0690. Directed Study in Pharmaceutics. Cr. 1-4 (Max. 4).**
Open only to undergraduates with consent of instructor.
- 0698. Seminar. Cr. 1 (Max. 3).**
Open only to undergraduates with consent of instructor. Reports and discussions on current literature and recent advances in the field. Assigned topics presented by students.
- 0700. Ionic Equilibria, Solubility and Complexation Phenomena.**
Cr. 3.
Prereq: consent of instructor. The presentation of mechanistic rationalization of drug solubility and complexation phenomena and methods for evaluating the parameters (such as association and thermodynamic constants) of these processes.
- 0701. Principles of Pharmaceutical Formulation. Cr. 3.**
Prereq: PHA 0700 and consent of instructor. Application of pharmaceutical agents and techniques to preparation, preservation and stabilization of pharmaceutical products.

0702. Kinetics of Drug Degradation and Stabilization. Cr. 3.

Prereq: consent of instructor. Application of the principles of chemical kinetics to the mechanism of drug degradation and stabilization.

0717. Manufacturing Pharmacy Lecture. Cr. 4.

Prereq: consent of instructor. Principles, processes and research concerning large scale formulation of pharmaceuticals.

0718. Manufacturing Pharmacy Laboratory. (1,6). Cr. 3.

Prereq: PHA 0717. Continuation of Pharmaceutics 0717.

0760. Biostatistics and Research Design. Cr. 5.

Prereq: consent of instructor. Analysis of clinical data by statistical methods that have been proven to be of value in biological and human therapeutic research. Introduction to research methodology.

0767. Pharmacokinetic Principles in Drug Therapy. Cr. 1-4 (Max. 4).

Prereq: consent of instructor; graduate standing. Application of pharmacokinetic principles to drug therapy, to improve the use of drugs in the treatment of disease and to critically interpret the clinical literature.

0768. Topics in Therapeutics I. Cr. 2.

Open only to students enrolled in Hospital Pharmacy M.S. program. The medical treatment of various disease states and a discussion of the disease states involved.

0769. Topics in Therapeutics II. Cr. 2.

Prereq: PHA 0768. Open only to students enrolled in Hospital Pharmacy M.S. program. Continuation of Pharmaceutics 0768.

0770. Organization of Pharmaceutical Services in Health-Care Facilities I. Cr. 3.

Prereq: consent of instructor. Development of pharmaceutical services in our nation's hospitals and related health-care facilities; the clinical pharmacist's role in developing medication safety policies and procedures, drug distribution and control systems, preventing medication errors and adverse drug reactions.

0771. Organization of Pharmaceutical Services in Health-Care Facilities II. Cr. 3.

Prereq: PHA 0770 and consent of instructor. Determining the pharmaceutical service needs of health-care facilities; developing special services such as drug information, special formulation; utilization of electronic data processing; personnel training and management.

0773. Principles of Patient Assessment. Cr. 1.

Prereq: admission to Pharm. D. program. Introduction to the principles of patient assessment as they relate to assessing the appropriateness of patient medication therapy. Includes organ system analysis, techniques of patient interviewing and essentials of medical history.

0776. Social Policies and Health-Care. Cr. 3.

Prereq: consent of instructor. Social issues, policies, and legislative action and their implications in the practice and procedures in the provision of health-care.

0777. Disease Processes and Therapeutics. Cr. 2-6 (Max. 12).

Prereq: admission to Pharm. D. program. The pathophysiology of

disease states, the clinical pharmacology and therapeutic applications of the drugs used in the treatment of disease.

0780. Clinical Pharmacy Clerkship. Cr. 1-4 (Max. 16).

Prereq: admission to Pharm. D. program. Discussions and observations on the major disease entities; emphasizes various drug therapies and methodology of choice. Participation in clinical aspects of patient rounds, medication profile and adverse drug reaction systems, admission and discharge drug histories and involvement in in-service clinical education programs.

0794. Clinical Pharmacy Seminar. Cr. 1 (Max. 4).

Prereq: admission to Pharm. D. program. Reports and discussions by students and members of the staff concerning current developments in clinical pharmacy.

0795. Professional Doctoral Investigation. Cr. 3.

Prereq: admission to doctoral program. Independent exploration of an approved area of professional intellectual interest and preparation of an acceptable manuscript suitable for publication.

0797. Hospital Pharmacy Seminar. Cr. 1-2 (Max. 4).

Prereq: consent of adviser. Reports and discussions by students and members of the staff concerning current developments in the field of hospital pharmacy.

0798. Seminar. Cr. 1-2 (Max. 4).

Prereq: consent of adviser. Reports and discussions by students and members of the staff concerning current developments in the field of pharmaceuticals.

0799. Master's Essay Direction. Cr. 3.

Prereq: consent of adviser.

0802. Interfacial Phenomena. Cr. 3.

Prereq: consent of instructor. Interfacial phenomena; thermodynamics of surfaces; electrical aspects of surface chemistry; monomolecular film behavior; adsorption on solid surfaces; biological implications of surface chemistry.

0803. Pharmaceutical Disperse Systems. Cr. 3.

Prereq: consent of instructor. Presentation of theory basic to technology of pharmaceutical colloids, emulsions and suspensions.

0805. Pharmacokinetics and Biopharmaceutics I. Cr. 3.

Prereq: consent of instructor. Discussion of the kinetics of drug absorption, distribution, metabolism, and excretion; the utilization of these considerations in pharmaceutical formulation and design of dosage forms.

0806. Pharmacokinetics and Biopharmaceutics II. Cr. 3.

Prereq: PHA 0805 and consent of instructor. Continuation of Pharmaceutics 0805.

0860. Special Topics in Pharmaceutics. Cr. 3 (Max. 9, M.S.; Max. 18, Ph.D.).

Prereq: consent of instructor. Recent developments in pharmaceuticals. Topics under investigation and of current interest offered in different quarters.

0895. Research in Pharmaceutics. Cr. 3-6 (Max. 9, M.S.; Max. 18, Ph.D.).

Prereq: consent of instructor. Laboratory work employing some

of the modern techniques available in pharmaceuticals, including the application of basic principles to graduate study and research.

0899. Master's Thesis Research and Direction. Cr. 1-12 (12 required).

Prereq: consent of adviser.

0999. Doctoral Dissertation Research and Direction. Credits to be arranged.

Prereq: consent of doctoral adviser.

Pharmacognosy (PCG)

***0320. Pharmacognosy. Cr. 3.**

Prereq: P C 0310, 0311; coreq: IHS 0320; P C 0320. Sources, properties and uses of drugs of natural origin.

0690. Directed Study in Pharmacognosy. Cr. 1-4 (Max. 4).
Open only to undergraduates with consent of instructor.

0698. Seminar. Cr. 1 (Max. 3).

Open only to undergraduates with consent of instructor. Reports and discussions on current literature and recent advances in the field. Assigned topics presented by students.

0750. Advanced Pharmacognosy I. Cr. 4.

Prereq: consent of instructor. Pharmaceutical properties and techniques employed in isolation, identification, purification, and evaluation of natural drug products.

0751. Advanced Pharmacognosy II. Cr. 4.

Prereq: PCG 0750. Continuation of Pharmacognosy 0750.

0798. Seminar. Cr. 1-2 (Max. 4).

Prereq: consent of instructor. Reports and discussions on current literature and recent advances in the field. Assigned topics presented by students.

0860. Special Topics in Pharmacognosy. Cr. 3 (Max. 9, M.S.; Max. 18, Ph.D.).

Prereq: consent of instructor. Recent developments in pharmacognosy. Topics under investigation and of current interest offered in different quarters.

0895. Research in Pharmacognosy. Cr. 3-6 (Max. 9, M.S.; Max. 18, Ph.D.).

Prereq: consent of instructor. Laboratory work employing some of the modern techniques available in pharmacognosy, including the application of basic principles to graduate study and research.

0899. Master's Thesis Research and Direction. Cr. 1-12 (12 required).

Prereq: consent of adviser.

0999. Doctoral Dissertation Research and Direction. Credits to be arranged.

Prereq: consent of doctoral adviser.

Pharmacology (PCL)

***0410. Pharmacology I. Cr. 5.**

Prereq: IHS 0331; coreq: P C 0410, 0411. General principles of pharmacology and toxicology; influence of drugs on the autonomic nervous system, the cardiovascular and excretory systems.

***0420. Pharmacology II. Cr. 4.**

Prereq: P C 0410, 0411; PCL 0410. Actions of medicinal agents on the central nervous system (such as stimulants, psychotropics, analgesics, general anesthetics); local anesthetics.

***0430. Pharmacology III. (3,3). Cr. 4.**

Prereq: PCL 0420; coreq: P C 0430; PHA 0430. Endocrine products and synthetics used as medicinal agents; influence of drugs on endocrine secretions; cytotoxic drugs; and toxicities of heavy metals, certain gases and vapors.

0689. Toxicology and Adverse Drug Reactions. Cr. 3.

Prereq: last professional year standing. Study of toxicology and adverse drug reactions including metabolism, hypersensitivity, carcinogenicity, drug-drug interactions and other factors hazardous to human health.

0690. Directed Study in Pharmacology. Cr. 1-4 (Max. 4).

Open only to undergraduates with consent of instructor.

0698. Seminar. Cr. 1 (Max. 3).

Open only to undergraduates with consent of instructor. Reports and discussions on current literature and recent advances in the field. Assigned topics presented by students.

0710. Advanced Pharmacology I. Cr. 3.

Prereq: consent of instructor. Study of the theories of drug action; cellular pharmacology.

0711. Advanced Pharmacology II. Cr. 3.

Prereq: consent of instructor. Continuation of Pharmacology 0710.

0712. Screening Methods. (2,6). Cr. 4.

Prereq: consent of instructor. Critique of those methods used for evaluating pharmacological actions of new chemical agents.

0713. Advanced Pharmacology Laboratory I. (0,6). Cr. 2.

Prereq. or coreq: PCL 0710. Laboratory experimentation on principles discussed in Pharmacology 0710.

0714. Advanced Pharmacology Laboratory II. (0,6). Cr. 2.

Prereq. or coreq: PCL 0711. Laboratory experimentation on principles discussed in Pharmacology 0711.

0715. Biochemical Pharmacology. Cr. 3.

Prereq: consent of instructor. Discussion of the principles of the biochemical aspects of drug action.

0716. Biochemical Pharmacology Laboratory. (0,12). Cr. 4.

Prereq: consent of instructor. Laboratory experimentation on subjects discussed in Pharmacology 0715.

0798. Seminar in Pharmacology. Cr. 1-2 (Max. 4).

Prereq: consent of adviser. Reports and discussions by students and staff members concerning recent advances in pharmacology.

0860. Special Topics in Pharmacology. Cr. 3 (Max. 9, M.S.; max. 18, Ph.D.)

Prereq: consent of instructor. Recent developments in pharmacology. Topics to be announced in *Schedule of Classes*.

0895. Research in Pharmacology. Cr. 3-6 (Max. 9, M.S.; max. 18, Ph.D.)

Prereq: consent of instructor. Laboratory work employing some of the modern techniques available in pharmacology, including the application of basic principles to graduate study and research.

0899. Master's Thesis Research and Direction. Cr. 1-12 (12 required).

Prereq: consent of adviser.

0999. Doctoral Dissertation Research and Direction. Credits to be arranged.

Prereq: consent of doctoral adviser.

Approved Elective Courses in the Humanities and Social Sciences*

The pharmacy curriculum provides for the selection of elective courses from the numerous offerings of other colleges or departments within the University. Other sections of this bulletin should be consulted for course descriptions.

The following list of approved electives are accepted for degree credit without prior approval of an adviser. These courses are designed for non-majors in the areas represented and prerequisites are minimal. Courses not listed may be elected provided that the stated prerequisites are met and prior approval of an adviser is obtained. Normally, no more than twelve credits in any single area will be accepted as degree credit.

Anthropology (ANT)

	<i>credits</i>
0210. Introduction to Anthropology	4
0211. Introduction to Physical Anthropology	4
0520. Social Anthropology	4

Art History (A H)

0100. Introduction to the Elements of Art	4
0110. Survey of Art History I	4
0111. Survey of Art History II	4
0112. Survey of Art History III	4

Economics (ECO)

0103. Survey of Economics III	4
0541. Labor Problems I (S W 0713)	4
0584. Economics of Social Welfare (S W 0707)	4
0641. Labor Problems II (S W 0714)	4

* Election of a minimum number of approved elective courses is required of all students in the undergraduate professional curriculum; of these four credits must be in an English 0200 level course. Note: no degree credit is granted for English 0208, Composition Workshop.

English (ENG)

0209. Techniques of Expository Writing	4
0210. Techniques of Imaginative Writing	4
0220. Introduction to Contemporary English: Usage and Meaning ..	4
0225. Major Authors in World Literature: Classical and Medieval	4
0226. Major Authors in World Literature: Renaissance and Romantic	4
0227. Major Authors in World Literature: Twentieth Century	4
0228. Introduction to Folklore	4
0231. Introduction to Poetry	4
0232. Introduction to Fiction	4
0233. Introduction to Drama	4
0234. The English Bible as Literature	4
0242. British Literature from the Beginning to the Present	4
0270. Major Authors in American Literature to the Twentieth Century	4
0271. Major Authors in American Literature of the Twentieth Century	4
0275. Introduction to Afro-American Literature	4

History (HIS)

0110. The World and the West: Foundations	4
0120. The World and the West: Medieval and Early Modern Era, 800-1700	4
0130. The World and the West: The Modern Era since 1700	4
0201. Growth of American Democracy to 1815	4
0202. Growth of American Democracy, 1815-1885	4
0203. Growth of American Democracy since 1885	4
0224. History of Michigan	4

Humanities (HUM)

0101. Art and Music in Western Civilization	4
0110. Humanities Survey I	4
0111. Humanities Survey II	4
0112. Humanities Survey III	4
0201. Introduction to the Humanities: Correlation of Literature with the Visual and Musical Arts	4
0202. Introduction to the Humanities: Correlation of the Visual Arts with the Literary and Musical Arts	4
0203. Introduction to the Humanities: Correlation of Music with Literature and the Visual Arts	4
0485. Humanities and Education	4

Philosophy (PHI)

0101. Introduction to Philosophy	4
0120. Logic I	3
0130. Logic II	3

Political Science (P S)

0201. The Political Process in the Urban Setting	4
0208. Contemporary Political Ideologies	4
0281. World Politics	4
0511. Public Opinion and the Political Process (SOC 0511) (U P 0535)	4
0512. Political Parties and Elections	4
0513. The Legislative Process	4

	<i>credits</i>
0516. American Political Reform Movements	4
0517. State and Local Government	4
0533. Bureaucracy, Public Policy and Power Structure (U P 0545)	4
0540. American Legal Systems and Processes	4
0569. American Political Thought	4

Psychology (PSY)

0198. Introductory Psychology	4
0330. Psychology of Adjustment	4
0430. Abnormal Psychology	4

Sociology (SOC)

0201. Introduction to Sociology	4
0202. Social Problems	4
0460. Social Psychology	4

Speech (SPH)

0200. Effective Speech	4
0210. Persuasive Speaking	4
0520. Group Communication and Human Interaction	4



FACULTY OF PHARMACY

ADMINISTRATION

Dean: Eberhard F. Mammen
 Dean Emeritus: Roland T. Lakey
 Deputy Dean of Pharmacy: Gerald E. Schumacher
 Assistant Dean for Admissions
 and Student Affairs: Larry N. Swanson
 Graduate Officer: Melvin F. W. Dunker
 Director of Continuing
 Education Programs: Willis E. Moore
 Coordinator of Clinical Education and
 Research Programs: Robert E. Smith
 Registrar: Richard H. Schell
 Pre-Professional Counselor: Victoria M. Asmar
 Educational Media Coordinator: Richard A. Piekarski
 Business Manager: Richard Aja

PROFESSORS

Harold E. Bailey (Emeritus), Martin Barr, Raymond J. Dauphinais, Melvin F. W. Dunker, Sereck H. Fox (Emeritus), Robert T. Louis-Ferdinand, Willis E. Moore, Janardan B. Nagwekar, Henry C. Wormser

ASSOCIATE PROFESSORS

Hanley N. Abramson, Frederick C. Beuthin, †J. Verne Crandall (Emeritus), Gary D. Fenn, Wendell T. Hill, Jr., Patrick L. McKercher, Richard K. Mulvey, Paul J. Munzenberger, Gerald E. Schumacher, Robert E. Smith, Larry N. Swanson

ADJUNCT ASSOCIATE PROFESSORS

Kenneth H. Fish, Larry K. Shoup, Vern F. Thudium, Ronald T. Turnbull

ASSISTANT PROFESSORS

Richard C. Berchou, Len Billingsley, Yolanda Durley, Gerard C. Hokanson, Richard L. Lucarotti, A. Waseem Malick, Douglas A. Miller, Earl J. Robertson, Judith M. Slining

ADJUNCT ASSISTANT PROFESSORS

Robert C. Barger, Rober O. Bollinger, James W. Culver, Ronald H. Lukasiewicz, Percy R. McClain, Robert B. Williams

INSTRUCTORS

Frank P. Facione, Dennis J. Szymanski (part-time), Cecelia N. Turczynski (Emeritus)

ADJUNCT INSTRUCTORS

Daniel M. Ashby, E. Philip Cole, John S. Dryps, H. Richard Henderson, Richard P. Hoffmann, Maxwell H. Miller, John F. Mitchell, Patricia A. Roubie, Bruce Vinson, Gerald W. Zeig

† Deceased

FACULTY OF ALLIED HEALTH PROFESSIONS

HISTORY

The allied health programs at Wayne State University — anesthesia, medical technology, occupational therapy, physical therapy, and radiation therapy technology — developed from separate professional educational and training programs. The earliest, occupational therapy, originated in special education in 1944 and became an approved occupational therapy program in 1946; ten years later it was placed in the curriculum of the College of Liberal Arts. In 1963 the School of Medicine undertook the responsibility for the teaching of occupational therapy, and in 1964 its dean initiated the second allied health program, physical therapy. Both of these programs were housed in various clinical facilities.

Medical technology began in the College of Liberal Arts in 1945. In 1964 it became a program of the Department of Pathology and eight years later became a separate department in the School of Medicine. Medical technology and the other allied health programs were formed into the Division of Allied Health Programs by the Dean of the School of Medicine in 1970. In 1971 a program in nurse anesthesia was added to the Division, and a year later the departmental administrative offices with their professional instructional programs were moved to newly renovated quarters on the downtown medical campus.

In January 1974 the Division of Allied Health Programs became affiliated with the College of Pharmacy to form the College of Pharmacy and Allied Health Professions. Two and a half years later, July 1976, the Department of Radiation Technology was established. The Therapeutic Radiation Program of Henry Ford Hospital was incorporated into the department to become the first area of specialization, radiation therapy.

LOCATION

Located at 1400 Chrysler Freeway, the Faculty of Allied Health Professions is in the immediate vicinity of the Detroit Medical Center, Wayne State University School of Medicine and the Shiffman Medical Library. Within the Medical Center are five clinical facilities: Harper-Grace, Hutzel, Children's, and Detroit General Hospitals; and the Rehabilitation Institute; these provide opportunities for clinical training. Additions to the Center now under construction include the Health Care Institute for ambulatory care and the new Detroit General Hospital.

PROGRAMS

Medical technology, occupational therapy, physical therapy, radiation therapy, and anesthesia are among the allied health programs which contribute in vital ways to the practice of medicine. These fields of study lead to interesting and re-

warding careers — for the medical technology student, a career in the laboratory; for the student of occupational or physical therapy, a career of direct involvement with clients in both medical and community settings; for the radiation therapy technologist, a career in service to oncology patients; and for the nurse anesthetist, a career as a member of a highly skilled, efficient operating room team.

The nurse anesthetist is a specialist who, as a member of a health-care team, is qualified to administer anesthesia to patients for all types of operations under the direction of a physician. The anesthetist is also prepared in the management of cardiopulmonary resuscitation and in the application of modern methods and procedures of respiratory care.

Students in medical technology learn the scientific principles and theories behind the many laboratory tests performed to aid the diagnosis of disease. During the latter part of their curriculum, they become proficient in the performance of these tests, and familiar with the practical aspects of the hospital laboratory. The work of the medical technologist is indispensable to effective care of the sick, because results of their analytical work often establish a diagnosis which must be made before medical care can be instituted.

Education in occupational therapy prepares the student to assist individuals who have limitations in the performance of tasks required in normal routines of daily living, i.e. self care, work and play. To be competent therapists students learn to utilize concepts of treatment related to the restoration, development and maintenance of physical, psychological, social, emotional and cognitive functions. The curriculum includes instruction in the use of specific evaluative procedures, the application of a wide variety of activities related to daily living tasks, including creative and manual skills, and the procedures for functioning as a member of a health-care team. The occupational therapist's goal is to provide the client the means for assessing his abilities to function as independently as possible. Seeing this accomplished provides the therapist the satisfaction of fulfilling a needed role in society.

Undergraduate education in physical therapy prepares students to practice in a health-care profession which will enable the person despite disease or disability to function as a contributing member of society. The curriculum, didactic and clinical, provides opportunities for the student to learn basic skills and techniques in evaluation, treatment procedures, and selection of appropriate therapeutic procedures to meet the needs of the individual. The physical therapist is an integral member of the medical team in the planning, implementation and evaluation of the health-care program. Physical therapy graduates have the opportunity to initiate and influence social change by establishing close relationships with people in a wide variety of settings.

The program in radiation therapy technology is designed to prepare students to administer treatment with ionizing radiation to patients with malignant diseases. The didactic portion of the curriculum provides the mathematics, physics, basic science, and psychology background which the student then learns to apply in a clinical setting. The clinical portion of the curriculum places considerable emphasis on learning the

practical skills and techniques required to handle the various materials and operate the sophisticated machinery of a radiation therapy facility. The clinical training also provides opportunity for the student to interact with physicians and graduate technologists in the treatment planning process and with patients who are receiving treatment with ionizing radiation.

STUDENT AID

Undergraduate Program

The University offers opportunities to students in need of financial assistance to meet the expenses of their education. Information about obtaining assistance through scholarships and loans is available from the Wayne State University Office of Scholarships and Financial Aids, 222 Administrative Services Building, Detroit, Michigan 48202.

In addition, the Michigan Society of Medical Technologists offers a scholarship or loan to qualified junior or senior students in the professional program. Information and applications may be secured from the Chairman, Department of Medical Technology.

A limited amount of financial assistance is available to qualified students in the professional level occupational therapy program. Information may be obtained from the Chairman, Department of Occupational Therapy.

Graduate Program

The Wayne State University Office for Graduate Studies offers a number of Graduate-Professional Scholarships to qualified applicants, covering resident tuition and some other regularly assessed fees. Information and applications may be secured from the Chairman, Graduate-Professional Scholarship Committee, the Office for Graduate Studies, 1056 Mackenzie Hall, Wayne State University, Detroit, Michigan 48202.

For other financial assistance, information is available from the Office of Graduate Studies or the Office of Scholarships and Financial Aids, 222 Administrative Services Building, Wayne State University, Detroit, Michigan 48202.

ACADEMIC PROCEDURES

For complete information regarding academic rules and regulations of the University, students should consult the General Information section of this bulletin, beginning on page 5. The following additions and amendments pertain to allied health students.

UNDERGRADUATE ADMISSION

PREPROFESSIONAL PROGRAMS

The Office of Admissions is located in room 116, Administrative Services Building, 5950 Cass Avenue (corner of Cass and Antoinette), Detroit, Michigan 48202. Telephone 577-3560. Admissions counselors are available for personal conferences to aid the prospective student.

Preprofessional programs in medical technology, occupational therapy, physical therapy, and radiation therapy technology are taken in the College of Liberal Arts, and all students must apply for admission to that College.

RECOMMENDED HIGH SCHOOL PREPARATION

Students who plan to enter the University as freshmen should have included in their high school programs at least three years of English, one year of algebra, one year of plane geometry, at least one course in a laboratory science, and at least two years of a foreign language. Some programs require additional work in mathematics and science.

ADMISSION TO PROFESSIONAL PROGRAMS

Each of the Allied Health programs is limited in the number of applicants that can be accepted. This limitation is created not only by the number of faculty members available, but also by the number of positions available in health care facilities where much of the field work experience is conducted at a 1:1 or 1:2 faculty-to-student ratio.

Students are admitted to the professional program annually. In the sophomore year the student should make application to the program of his choice. However, because of special requirements for each program, students are urged to contact the department for counseling and application deadline dates a year before they plan to enter.

For admission to the professional Allied Health programs, applicants must have acquired a minimum of ninety credit hours (or their equivalent) and have completed all equivalent preprofessional course requirements. Students admitted to the professional program usually have an HPA of 2.5 (A = 4.0) or better. To be considered, all applicants must have taken the Allied Health Professions Admissions Test (AHPAT) no later than March of the year in which admission is sought. The AHPAT test is a new standardized

evaluation procedure that has been developed similar to the Medical College Admissions Test. It provides admissions officers throughout the country with comparative data on an applicants verbal and quantitative abilities, reading comprehension and science preparation. This test will be administered several times each year at Wayne State University as well as other locations throughout the country. Applicants should plan to take this test no later than the February or March preceding entry into the professional programs. Application forms and detailed information can be obtained from the Admissions Office, College of Pharmacy and Allied Health Professions.

Although academic achievement is important, personal qualities are considered of equal importance since the students selected will eventually be working as members of a team in the delivery of health care. Therefore, criteria for selection is also based on such qualities as maturity, motivation, knowledge of the profession, ability to communicate, personal integrity, and empathy for others. Evidence of good physical and mental health is required. Consequently, evaluations from faculty and academic advisers, as well as a personal interview, are given great weight in the selection of candidates by admissions committees.

ACADEMIC ADVISING

A staff of academic advisers is available in the Liberal Arts Advising Office, second floor, Mackenzie Hall, for students interested in allied health professions. Students should confer with professional program advisers whenever they have questions about degree requirements, academic regulations, course elections, programs of study, or difficulties in their academic work. Course elections are arranged in consultation with the professional program advisers.

Information on advising for specific programs can be obtained from the Office of the Faculty of Allied Health Professions; telephone: 577-1047.

NORMAL PROGRAM LOAD

The requirements for graduation are based upon a normal program of fifteen credits a quarter for twelve quarters. Because courses are of varying length, students cannot always arrange programs of exactly fifteen credits; hence the normal load is fourteen to eighteen credits.

PROBATION

If a student's work falls below the required cumulative average for professional studies he will be placed on probation. If he incurs a serious honor point deficiency in a quarter, or remains on probation for more than one quarter, he will not be allowed to re-register in the College unless he obtains permission from the Office of the Dean. Such permission will be granted only after an appraisal of the student's situation and some assurance from the student that the previous causes of failure will not be operative in the proposed program.

Program Probation — A student whose quarterly honor point average falls below the required average will be placed on program probation. If he incurs a serious honor point deficiency in a quarter, or remains on probation for more than one quarter, he will not be allowed to remain in his program unless he obtains permission from the chairman.

Removal of Probation — The student will be removed from probation at the end of any quarter in which he achieves the average required.

Academic Honesty — Students are expected to abide by the principle of honesty which is fundamental to the life of a scholarly community. If an act of academic dishonesty (cheating or plagiarism) is discovered, the instructor is expected to take appropriate action, which can include one or more of the following: reprimand, repeat of assignment, a failing grade for the assignment, failing grade for the course. Serious acts of dishonesty can lead to suspension or dismissal. The instructor will notify the student of the alleged violation and inform him of any action being taken. Both the student and the instructor are entitled to academic due process should the instructor's action be contested.

Further information can be obtained from the College's Office of the Dean.

ATTENDANCE

Regularity in attendance is necessary for success in college work. Each instructor at the beginning of the course will announce his attendance requirements.

DEAN'S LIST OF HONOR STUDENTS

Full-time students whose honor point averages are 3.5 or above in a given term are eligible for citation for distinguished scholarship. Part-time students are eligible for inclusion in the Dean's List of Honor Students after each accumulation of twelve credits.

STUDENT RIGHTS AND RESPONSIBILITIES

— see page 18.

The Faculty reserves the right to dismiss at any time a student who does not appear to be suited for the work or whose conduct or academic standing is regarded as unsatisfactory.

BACHELOR'S DEGREE REQUIREMENTS

Upon completion of the requirements listed in each of the programs the College of Pharmacy and Allied Health Professions grants the following undergraduate degrees:

- Bachelor of Science in Anesthesia
- Bachelor of Science in Medical Technology
- Bachelor of Science in Occupational Therapy
- Bachelor of Science in Physical Therapy
- Bachelor of Science in Radiation Technology

CURRICULUM REQUIREMENTS

The curriculum is a program of study designed in terms of the student's interest or of his preprofessional or professional direction. With the consent of adviser, a student may change his curriculum at the beginning of any quarter in which he changes his objective. *The student should consult regularly with his academic or major adviser about his progress in completing requirements.*

PROFICIENCY EXAMINATION IN COMPOSITION

Prior to graduation all students are required to take the Proficiency Examination in Composition. Any student who fails this examination must take and pass English 0208, Writing Workshop. It is recommended that this be completed prior to or during the junior year.

RESIDENCE

The last forty-five credits of work applicable to the degree, exclusive of credit by special examination, must be completed in an undergraduate college or school of Wayne State University.

TIME LIMITATION

Because of rapid changes in technology and in the methods and concepts of patient care, students in the allied health programs must complete their preprofessional science credits within the six years just prior to admission to the professional program and must complete their professional program within three years. Students who interrupt their academic program will have to apply for reinstatement on an individual basis to have their performance evaluated. They may be required to pass examinations comparable to those given to current students at that level sought for re-entry into the program.

REQUIREMENTS FOR GRADUATION

In addition to the formal academic requirements for graduation, students in the Allied Health Professions must demonstrate traits of character, stamina, and emotional stability that fit them for the health-care field. Students may be required to withdraw from the College when in the judgment of a committee of the faculty, they are deficient in these qualities so as to make them unsuitable for their chosen profession.

ANESTHESIA

Office: 406 Detroit General Hospital
Chairman: John F. Garde

ASSISTANT PROFESSOR

John F. Garde

INSTRUCTORS

James J. Claffey, Celestine M. Harrigan, Michael Long, Susan Smith, Nancy Wittstock, Prudentia Worth

The resources of the College of Liberal Arts and the basic science and clinical departments of the Faculty of Allied Health Professions have been combined to establish a degree program in anesthesia. Further information regarding the program can be obtained from the chairman.

Anesthesia is a dynamic health profession which deals primarily with methods and procedures for rendering a patient insensible to pain and emotional stress during surgical, obstetrical, and some diagnostic and medical procedures. Professional services are also rendered in the field of respiratory care, cardio-pulmonary resuscitation, and post-anesthetic care.

The nurse anesthetist is a specialist, who as a member of a health care team, is qualified to administer anesthesia to patients for all types of operations under the direction of a physician. In many places, the nurse anesthetist works with the physician-anesthesiologist, while in other situations, the anesthetist functions directly under the surgeon.

Primary goals of this degree program are to provide the interested student with a higher level of scientific background and clinical experience in the field of anesthesia, and to qualify him for instructional and supervisory roles. The courses of study offered by Wayne State University are approved by the Council on Accreditation of the American Association of Nurse Anesthetists. Upon completion of the basic science and clinical requirement, the student is eligible to take the national qualifying examination for membership into the American Association of Nurse Anesthetists and is then recognized as a Certified Registered Nurse Anesthetist.

DEGREE PROGRAM

Bachelor of Science in Anesthesia

The program leading to a Bachelor of Science in Anesthesia is open only to professional registered nurses. The degree program is arranged as follows:

The preprofessional curriculum (75 credits) consists of the liberal arts courses taught by the faculty of the College of Liberal Arts.

The professional curriculum (112 credits) consists of the courses taught by the members of the Department of Anesthesiology of Detroit General Hospital in conjunction with the Faculty of Allied Health Professions. Students receive a training stipend.

The requirements for admission into the preprofessional curriculum are those required by the College of Liberal Arts.

The requirements for admission into the professional curriculum are as follows:

1. Graduation from an accredited school of nursing.
2. Licensure as a registered professional nurse in Michigan.
3. Completion of the preprofessional science requirement: Biology 0103; Chemistry 0102, 0103, 0104.
4. An acceptable score on the Allied Health Professions Admission Test.
5. An overall honor point average above 2.6.
6. References from the director of the School of Nursing and the current Nursing Supervisor.
7. A personal interview.

Students are admitted to the professional curriculum in the fall quarter. See Academic Calendar, page 4.

PREPROFESSIONAL PROGRAM

Courses in this program are taken under direction of the College of Liberal Arts:

	<i>credits</i>
Biology 0103	5
Chemistry 0102, 0103, 0104	12
English 0150 and one 0200 level course	8
Political Science 0101	4
Psychology 0198	4
Social Science Electives	4
Speech 0200	4
Humanities Electives	4
Thirty credits may be received by taking an examination in Medical-Surgical Nursing	30

PROFESSIONAL PROGRAM — UNDERGRADUATE

Courses in this program are taken under the direction of the Faculty of Allied Health Professions:

	<i>credits</i>
Anesthesia 0300.....Orientation	0
Anesthesia 0310.....History of Anesthesia: Ethics, Legal Aspects and Administration	3
Anesthesia 0340.....Pharmacology of Anesthesia I	3
Anesthesia 0350.....Applied Chemistry and Physics for the Anesthetist	2
Anesthesia 0360.....Principles of Clinical Anesthesia I	6
Anesthesia 0361.....Principles of Clinical Anesthesia II	3
Anesthesia 0362.....Principles of Clinical Anesthesia III	2
Anesthesia 0363.....Respiratory Care	3
Anesthesia 0370.....Clinical Anesthesia Practicum I	6-12
Anesthesia 0371.....Clinical Anesthesia Practicum II	6-12
Anesthesia 0372.....Clinical Anesthesia Practicum III	6-12
Anesthesia 0420.....Anatomy and Physiology for Anesthetists I ..	5
Anesthesia 0421.....Anatomy and Physiology for Anesthetists II ..	5
Anesthesia 0430.....Anesthesia Seminar	1-2
Anesthesia 0440.....Pharmacology of Anesthesia II	4
Anesthesia 0441.....Pharmacology of Anesthesia III	3
Anesthesia 0442.....Pharmacology of Anesthesia IV	3
Anesthesia 0470.....Clinical Anesthesia Practicum IV	6-12
Anesthesia 0471.....Clinical Anesthesia Practicum V	6-12
Interdisciplinary Health Sciences 0331.....Basic Mechanisms of Disease.....	3

MEDICAL TECHNOLOGY

Office: 231 Health Sciences Building

Chairman: Dorothy Skinner

ASSISTANT PROFESSORS

Norma Dresch, Dorothy Skinner, Ann Wallace

INSTRUCTORS

James Adams, Jean Garza, Sandra Gluck

ADJUNCT PROFESSOR

Arnold Shafer

ADJUNCT ASSISTANT PROFESSORS

Charlotte Bartzack, Roger Calam

ADJUNCT INSTRUCTORS

Kathryn Beattie, June Caldwell, Mara Christiansen, Grace Hill, Mary C. McGrath, Joyce Salancy, Patricia Young

COOPERATING FACULTY

R. Gallagher, L. McCoy, G. Murano

The programs offered by the Department of Medical Technology utilize the facilities of the College of Liberal Arts, the Faculty of Allied Health Professions, and the pathology departments and clinical laboratories of hospitals affiliated with the Department of Medical Technology.

Medical technology is an allied health profession offering many challenging opportunities for men and women with an aptitude in the basic sciences and an interest in a career spent in giving indispensable aid to the effective practice of medicine. The Medical Technology Program at Wayne State University provides the interested student with the technical knowledge and specialized skills necessary to the profession. The work of the medical technologist usually centers in the hospital and clinical laboratory and involves performance of the following duties:

1. Provision of accurate diagnostic information to the physician through performance of a vast array of laboratory tests.
2. Comparative evaluation and utilization of the best possible methods of performance of these tests.
3. Understanding and operation of sophisticated laboratory equipment.
4. Effective teaching and supervision of students and auxiliary laboratory personnel.

While the majority of medical technologists work in hospital or other clinical laboratories, graduates are also prepared for positions in federal, state and local health departments, in industrial or research laboratories, and in medical technology education.

STUDENT ORGANIZATIONS

All students may have membership in the local, state, and national organizations of the American Society for Medical Technology.

DEGREE PROGRAMS

BACHELOR OF SCIENCE IN MEDICAL TECHNOLOGY

The program leading to the Bachelor of Science degree in Medical Technology fulfills the requirements for medical technology education of the Council on Medical Education of the American Medical Association. A graduate from Wayne State University with the degree of Bachelor of Science is eligible to take the national examination of the Registry of Medical Technologists of the American Society of Clinical Pathologists. The degree program is arranged as follows (see Courses of Instruction beginning on page 569):

	<i>credits</i>
The freshman and sophomore years constitute the preprofessional curriculum and are the liberal arts courses taught by the faculty of the College of Liberal Arts	89-91
The junior year begins the professional curriculum and is taught by the faculty of the Department of Medical Technology and the School of Medicine	48
The senior year consists of twelve months clinical experience in the laboratories in one of the affiliated hospitals	54
Total	191-193

Prerequisites for a student applying for admittance in the preprofessional curriculum in the College of Liberal Arts are:

	<i>high school units</i>
Physics	1
Chemistry	1
Algebra	1½
Geometry	1
Trigonometry	½
Recommended: Latin, German or French.	

Since the College of Liberal Arts does not offer courses covering the first 1½ units of work in algebra and geometry, entrance deficiencies in these subjects will have to be made up at a high school. Before the first course in college chemistry can be taken, the student must pass a mathematics placement test which covers two years of high school algebra.

A deficiency of any of the above high school units may extend the time required for completion of the courses prerequisite to beginning the professional curriculum in the junior year, or it may restrict the electives which may be taken. Any entrance deficiencies should be made up as early as possible, preferably in the first year.

PROFESSIONAL PROGRAM

The junior class is admitted to the professional curriculum in September only. The number of students in the medical technology curriculum has increased, making it impossible to accept into the professional program all students who have completed the prerequisites. Therefore, an application for admission to the program must be submitted to the Department of Medical Technology by April 15 of the year one wishes to enter the professional program.

The Admissions Committee is composed of in-service medical technologists on the faculty and adjunct faculty of the Department of Medical Technology, with a representative from the graduate program in medical technology. The Admissions Committee will interview and consider for admission all those students who —

1. Have the following cumulative honor point averages by the end of the winter quarter prior to the fall program:

- (a) 2.5 or better overall average; and
- (b) 2.3 or better combined science average (biology, chemistry, mathematics and physics).

2. Will have completed all prerequisites by the end of the summer quarter prior to the fall program.

3. Have had a psychological interview at Health Service, Fifth Floor, Mackenzie Hall (appointment to be made at least two weeks prior to April 15 deadline).

4. Submits in addition to the application the following:

a. References from:

- (1) one employer;
- (2) one science faculty member; and
- (3) one non-science faculty member; and

b. Transcript from Wayne through the winter quarter prior to fall program. (If one has transferred to Wayne, a transcript from all former undergraduate schools must be included.)

It is the function of the Admissions Committee to objectively and critically evaluate each applicant. A sound academic background, a familiarity with the profession and its demands, together with a desire to advance the field of medical technology through research, teaching, or service are important factors for consideration. Emotional stability, maturity, and the ability to communicate with others are among the criteria used in the evaluation of the student. Notification of the decision reached by the Admissions Committee will be made to the applicant regarding his acceptance into the program. The following format will be used:

1. Accepted

2. Denied

3. Conditional (If applicants have courses in progress which are prerequisites to the program, acceptance will not be final until satisfactory completion of the requirements.)

All requests for additional information should be addressed to the Chairman, Department of Medical Technology, College of Pharmacy and Allied Health Professions.

MASTER OF SCIENCE IN MEDICAL TECHNOLOGY

The primary purpose of this program is to graduate highly qualified medical technology educators, managers, or specialists in Immunohematology. The graduate student selects one of three curricula, depending on where he wishes to concentrate his efforts.

Some courses which provide necessary background information and techniques are common to all three curricula. Electives may be selected in education, management, or science, depending on the student's interest. Seminars appropriate for each track provide the student with the opportunity to formulate, evaluate, and exchange ideas.

The specific courses comprising the education curriculum have been carefully chosen in order to provide the student with the experience and knowledge necessary for effective teaching. The management curriculum consists of those courses designed to impart administrative acumen and managerial ability to the student. The immunohematology curriculum provides both the theoretical and clinical skills required of today's Blood Bank specialist. (Upon completion of this curriculum, the individual is eligible for the ASCP SBB Certification Examination.)

Students in the Master of Science degree program will receive a M.S. in medical technology upon completing:

Curriculum	Required Credits	Elective Credits	Total Credits
Management	44	6	50
Education	44	6	50
Immunohematology	52	8	60

Applications for admission to the Master of Science program may be secured from the Wayne State University Graduate Admissions Office, 5950 Cass Avenue, Detroit, Michigan 48202. Telephone: (313) 577-3560.

Available positions in the graduate program will be filled by the best qualified applicants. Applicants will be interviewed and notified of admission status with the Department of Medical Technology within one month of application.

All requests for additional information should be addressed to the Chairman, Department of Medical Technology.

REQUIRED COURSES

Preprofessional Program—Undergraduate

Courses in this program are taken under direction of the College of Liberal Arts:

First Year		credits
Biology 0103, and 0140 or 0220		9-10
Chemistry 0107, 0108		9
Chemistry 0110		4
English 0150		4
Medical Technology 0208	Medical Technology Seminar	1
Physics 0213		4
Social Science Elective		4
Speech 0200		4

Second Year		credits
Biology 0187		6
Chemistry 0224, 0519		8
English Elective		4
Humanities Elective		4
Mathematics 0180 (or equivalent)		5
Physics 0214		4
Social Science Electives		8
Electives (any area of interest)		10-12

Professional Program—Undergraduate

Basic science courses in this program are taken under the direction of the faculty of the Department of Medical Technology in cooperation with the faculty of the School of Medicine and staff of affiliated clinical institutions.

Third Year		credits
Biochemistry 0501, 0503, 0505	General Biochemistry Lectures	6
Biochemistry 0502, 0504, 0506	General Biochemistry Laboratory	6
Medical Technology 0301	Introduction to Electronics	2
Medical Technology 0302	Hematology I	4
Medical Technology 0303	Hemostasis	4
Medical Technology 0304	Principles of Blood Banking	4
Medical Technology 0305	Hematology II	4
Medical Technology 0306	Clinical Analysis	4
Medical Technology 0309	Medical Technology Professional Seminar	1
Medical Technology 0507	Instrumentation	3
Immunology and Microbiology 0551	Bacteriology and Immunology	6
Immunology and Microbiology 0552	Pathogenic Fungi and Parasites	4

During the Junior Year, a student with a quarterly h.p.a. below 2.0 is subject to dismissal.

Fourth Year

Medical Technology 0404	Laboratory Administration and Teaching	2
Medical Technology 0405	Hematology III	2
Comparative Medicine 0555	Human Parasitology & Diagnostic Procedures I	2
Comparative Medicine 0556	Human Parasitology & Diagnostic Procedures II	2

The following courses are taken at a hospital affiliated with the College of Pharmacy and Allied Health Professions for this purpose:

Medical Technology 0400, 0401, 0402, 0403, 0406, 0407	Medical Technology Laboratory	45
		191-193

No Senior student will be graduated with a grade of less than C in any clinical course.

Professional Program — Graduate

Management

Biochemistry 0761	Basic Instrumentation	2
Computer Science 0501	Computers and Research	4
Management 0607	Industrial Relations	4
Management 0761	Human Behavior in Organizations	4
Management 0763	Organizational Change and Development	4
Management 0765	Development of Inter-Personal Skills for Managers	4
Medical Technology 0707	Graduate Instrumentation	4
Medical Technology 0709	Instruction in Teaching Techniques	4
Medical Technology 0790	Directed Study in Clinical Instrumentation and Electronics	1
Medical Technology 0796	Directed Study in Medical Technology Instruction	1
Medical Technology 0797	Medical Technology Seminar	3
Medical Technology 0798	Terminal Project	5
Pharmaceutics 0760	Biostatistics and Research Design	5
or		
Physiology 0767	Introductory Biostatistical Methods	5
Plus electives to total		50

Education

Biochemistry 0761	Basic Instrumentation	2
Computer Science 0501	Computers and Research	4
Educational Leadership 5761	Educational Technology	4
Educational Leadership 5762	Instructional Material Workshop	2
Management 0761	Human Behavior in Organizations	4
Medical Technology 0707	Graduate Instrumentation	4
Medical Technology 0709	Instruction in Teaching Techniques	4
Medical Technology 0790	Directed Study in Clinical Instrumentation and Electronics	1
Medical Technology 0796	Directed Study in Medical Technology Instruction	1
Medical Technology 0797	Medical Technology Seminar	3
Medical Technology 0798	Terminal Project	5
Theoretical and Behavioral Foundations 7661	Evaluation and Measurement	4
Theoretical and Behavioral Foundations 7663	Fundamentals of Statistics	4
Plus electives to total		50

Immunohematology

Biology 0507	Genetics	5
Biology 0531	Immunology	3
Management 0761	Human Behavior in Organizations	4
Medical Technology 0702	Pathophysiology of Hemostasis	2
Medical Technology 0703	Advanced Blood Banking Theory	9
Medical Technology 0704	Clinical Immunohematology	12
Medical Technology 0705	Problem Solving Seminar	1
Medical Technology 0709	Instruction in Teaching Techniques	4
Medical Technology 0710	Hematology	2
Medical Technology 0796	Directed Study in Medical Technology Instruction	2
Medical Technology 0798	Terminal Project	4
Pharmaceutics 0760	Biostatistics and Research Design	5
or		
Physiology 0767	Introductory Biostatistical Methods	5
Plus electives to total		60



OCCUPATIONAL THERAPY

Office: 311 Health Sciences Building

Acting Chairman: Elizabeth Collins

PROFESSOR

Martha E. Schnebly

ASSOCIATE PROFESSOR

Elizabeth A. Boles

ASSISTANT PROFESSORS

Karmen Merle Brown, Elizabeth Collins; Suesetta Craig, Miriam Freeling

INSTRUCTORS

Joan Mackniesz, Sydelle Morrison, Agnes Ann Uyenco

ADJUNCT ASSISTANT PROFESSOR

Mildred F. Etter

FIELD WORK SUPERVISORS

Donald Bannasch, Norma Beauchamp, Joan Berry, Christine Bosonetto, Barbara Burkhardt, Gary Bykowski, Eila Cagle, Sherrie Coaster, Robyn Stearn, Marguerite Desotelle, Rosalie Drake, Mildred F. Etter, Elfrieda Falk, Victoria Fausz, Helen Fuhrman, Barbara Goldsmith, Ruth Grummon, Celestine Hamant, Jean Hannah, Linda Harwell, Susan Harwood, Carol Hass, Audrey Hillert, Karen Homfeld, Prebble LaDage, Martha Lough, Donna Lucke, Eleanore McCurry, Phyllis Mowery, Edwin Priemer, Rochelle Riechel, Lettie Redley, Lorna Spearman, Martha Van Sweden, Joye Williams

Occupational therapy is the art and science of directing man's participation in selected tasks of self-care, work and play in order to restore, reinforce and enhance performance, to diminish or correct pathology, and to promote and maintain health.

Occupational therapy provides service to those individuals whose abilities to cope with tasks of living are threatened or impaired by developmental deficits, physical injury or illness, psychological and social problems, the aging process and the effects of economic and cultural barriers.

Wayne State University offers courses of study which are accredited by the Council on Medical Education of the American Medical Association in collaboration with the American Occupational Therapy Association, and which prepare the graduate to take the national certification examination.

Occupational therapy education is offered through the baccalaureate degree program, the certificate program for post-degree students and the master's degree program for registered occupational therapists. All students apply through the University Office of Admissions. The preprofessional program is taken in the College of Liberal Arts. The basic professional program, taken in the College of Pharmacy and Allied Health Professions, is designed for full time enrollment (minimum load is twelve credits). Both degree and certificate

students must be formally accepted by the College of Pharmacy and Allied Health Professions before admission to the professional program.

Student Organizations

All professional-level students may become members of the Michigan Occupational Therapy Association, the Detroit District Occupational Therapy Association and the American Occupational Therapy Association.

The Occupational Therapy Club at Wayne State University is open to all preprofessional and professional level occupational therapy students and faculty. Meetings provide opportunities to develop professional understanding, to participate in service projects and to enjoy contact with other occupational therapy students and faculty.

Pi Theta Epsilon, Eta Chapter, is the occupational therapy honor society. Full-time students with junior, senior or post-degree status who are in the upper thirty-five percent of the class scholastically are eligible for membership. High academic standing is recognized and opportunities are provided for members to participate in service projects and professional activities in the community and the college.

DEGREE PROGRAMS

BACHELOR OF SCIENCE IN OCCUPATIONAL THERAPY

The curriculum outlined below, including a minimum of 201 quarter credits, leads to the degree of Bachelor of Science in Occupational Therapy. The student is admitted to the professional program at the beginning of the junior year through formal application and selection procedures, including completion of the preprofessional program.

Preprofessional Program

Courses in the preprofessional program are taken under the direction of the College of Liberal Arts:

First and Second Years

	<i>credits</i>	
Biology 0103	Introductory Biology	5
Biochemistry 0101	Introduction to Biochemistry	2
Chemistry 0101	Introduction to Chemistry	5
Economics 0101	Survey of Economics	4
English 0150	Freshman Composition	4
English 0209	Techniques of Expository Writing	4
Philosophy 0120	Logic I	3
Physical Science 0210	Applied Physical Science	5
Political Science 0101	American Government Power and Policy	4
Psychology 0198	Introductory Psychology	4
Psychology 0330	Psychology of Adjustment	4
Psychology 0430	Abnormal Psychology	4
Sociology 0201	Introduction to Sociology	4
Speech 0200	Effective Speech	4
Speech 0520	Group Communication and Human Interaction	4

Electives:

One course in economics, sociology, or anthropology.....	4
Two courses in literature at the 0200 or 0300 level.....	8
Electives (open selection).....	18
	90

Professional Program

The entering class is admitted to the professional curriculum in September only. The number of students who may be admitted is limited, making it impossible to accept all students who have completed the prerequisites. Therefore, an application for admission to the program must be submitted to the Department of Occupational Therapy by April 15 of the year one wishes to be considered for the professional program. All requests for additional information pertaining to the admission requirements should be addressed to the Chairman, Department of Occupational Therapy, College of Pharmacy and Allied Health Professions.

Basic science courses in the professional program are taken under the direction of the Faculty of Allied Health Professions in cooperation with the faculty of the School of Medicine.

Third and Fourth Years

	<i>credits</i>
Allied Health Programs 0340..... Psychology of Disability	3
Allied Health Programs 0350..... Social Organizational Aspects of Health Care	3
Allied Health Programs 0530..... Applied Anatomy	4
Allied Health Programs 0550..... Clinical Medicine I	4
Allied Health Programs 0551..... Clinical Medicine II	4
Anatomy 0320..... Anatomy	5
Interdisciplinary Health Sciences 0310..... Human Anatomy	5
Interdisciplinary Health Sciences 0320..... Human Physiology	5
Interdisciplinary Health Sciences 0321..... Human Physiology Laboratory....	1
Interdisciplinary Health Sciences 0331..... Basic Mechanisms of Disease....	3
Occupational Therapy 0301..... Occupational Therapy Assessment and Performance Techniques I	5
Occupational Therapy 0302..... Occupational Therapy Assessment and Performance Techniques II	6
Occupational Therapy 0307..... Roles and Functions I	4
Occupational Therapy 0310..... Clinical Psychiatry	4
Occupational Therapy 0318..... Life Tasks I	3
Occupational Therapy 0319..... Life Tasks II	4
Occupational Therapy 0407..... Roles and Functions II	4
Occupational Therapy 0418..... Life Tasks III	4
Occupational Therapy 0419..... Life Tasks IV	4
Occupational Therapy 0420..... Theory and Practice I	4
Occupational Therapy 0421..... Theory and Practice II	4
Occupational Therapy 0422..... Theory and Practice III	4
Occupational Therapy 0423..... Theory and Practice IV	4
Occupational Therapy 0425..... Occupational Therapy Seminar....	4
Occupational Therapy 0440..... Field Work I: Psychosocial	8
Occupational Therapy 0441..... Field Work II: Physical Dysfunction	8

111

Note: All students will have satisfactorily met the criteria for the Proficiency Examination in Composition prior to entering the field work experience phase of the program.

FIELD WORK

The professional education requirement as stated in the *Essentials of an Accredited Educational Program for the Occupational Therapist*, includes not less than twenty-four weeks (six months) of field work.

The number of students eligible for the field work phases of the curriculum exceeds the number of spaces available in health care agencies and community facilities located in the Metropolitan Detroit area. Therefore, students may be assigned to field work in facilities located outside the Metropolitan area as well as out-of-state.

Upon satisfactory completion of the field work experience and all other professional program requirements, the University grants the student a Bachelor of Science degree in Occupational Therapy and the College of Pharmacy and Allied Health Professions awards a Certificate in Occupational Therapy. The graduate is then eligible for examination and certification procedures of the American Occupational Therapy Association.

POST DEGREE PROGRAMS

Second Baccalaureate Degree

A student who holds a bachelor's degree acceptable to Wayne State University and who has satisfactorily completed all preprofessional requirements or the equivalent may apply for admission to the professional occupational therapy curriculum. Upon successful completion of the professional curriculum, including field work, the University grants the student the degree, Bachelor of Science in Occupational Therapy, and the College of Pharmacy and Allied Health Professions awards a Certificate in Occupational Therapy. The graduate is then eligible for the examination and certification procedures of the American Occupational Therapy Association.

Certificate Program

A student who holds a baccalaureate degree acceptable to Wayne State University and who does not wish to qualify for the degree Bachelor of Science in Occupational Therapy will be exempted from completing specified preprofessional courses. The student should contact the Chairman, Department of Occupational Therapy, regarding those courses which are prerequisites for admission. The student may apply for admission upon completion of the required prerequisite courses. Upon completion of the professional program described above and including the six months field work, the student will be granted a Certificate in Occupational Therapy from the College of Pharmacy and Allied Health Professions. The graduate is then eligible for the examination and certification procedures of the American Occupational Therapy Association.

MASTER OF SCIENCE IN OCCUPATIONAL THERAPY

The Master of Science degree in Occupational Therapy is designed to prepare the registered occupational therapist for one of a number of specialty areas or advanced positions, to teach in academic or clinical settings, to do research, to fill administrative or supervisory positions and to acquire knowledge and skill in the newer evaluation and treatment techniques.

In this unique curriculum the student has opportunity to pursue specialist roles such as the administrator, the clinical education supervisor, the consultant and the researcher. In addition, the student studies current problems and trends in areas of specialization of occupational therapy. Examples of specialty areas include sensory integration, mental health, gerontology and community health. Through class work, seminars, research and field work the program provides in-depth professional and academic knowledge and skills.

Professional field experience is required of all master's degree candidates. This is a meaningful supervised placement in an off campus institution as a practicum in the student's area of specialization.

Admission

Applicants for admission must meet Wayne State University criteria for admission to graduate school, submit a department application and hold a personal interview with an adviser in the Department of Occupational Therapy. To qualify for admission the applicant must hold the title of Registered Occupational Therapist. An international applicant must be duly qualified as an occupational therapist in the country in which he trained. The prospective graduate student must have worked in the field of occupational therapy for at least one year prior to entering the graduate program.

Degree Requirements

In order to earn a Master of Science degree the student must successfully complete forty-eight credits in approved graduate courses under the thesis or the essay plan. Specific academic and professional courses are required of all students and various university electives in the area of specialization are available according to the student's interest. For the full-time student this curriculum is designed to be completed in four quarters or one calendar year. For the part-time student who wishes to continue working, all graduate classes in occupational therapy and other departments in the University may be elected in the late afternoon or evening. During the quarter in which the student is enrolled in the professional field experience, full-time study may be required.

Plan A (Thesis)

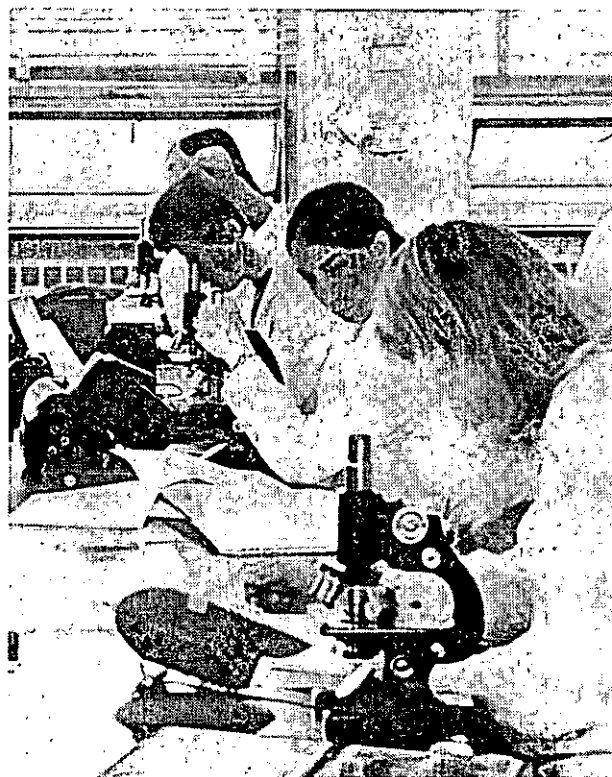
	<i>credits</i>
Required cognate courses	8
Required professional courses	12
Occupational therapy electives	8
Other electives	8
Thesis research and direction	12
	48

Plan B (Essay)

Required cognate courses	8
Required professional courses	12
Occupational therapy electives	8
Other electives	17
Essay direction	3
	48

Required Courses

	<i>credits</i>
Theoretical and Behavioral Foundations 7663	4
Theoretical and Behavioral Foundations 7664	4
Occupational Therapy 0730	4
Occupational Therapy 0740	2-4
Occupational Therapy 0750	2-4
Occupational Therapy 0770	3
Occupational Therapy 0775	4
Occupational Therapy 0799	3
Occupational Therapy 0899	12



PHYSICAL THERAPY

Office: 439 Health Sciences Bldg.

Chairman: Roberta F. Cottman

ASSISTANT PROFESSORS

Roberta F. Cottman, Judith S. Canfield, Mable Sharp

INSTRUCTOR

Charles Costello

PART-TIME INSTRUCTORS

Natalie Campbell, Jack Front, Karen Johnstone, John Kotwick, Alexander Mapleton, James Pipp, Barbara Rubenstein, Jane Toot, Stephen Stewart

COOPERATING FACULTY

Leonard Bender, Maurice Castle, Voight Hodgson, Eugene D. Horrell, Myron LaBan, David Lawson, Joseph Meerschaeert, Joseph Posch, William Saville, Joseph Schaeffer, Edward G. Tracy

Physical therapy is a profession which develops, coordinates and utilizes selected knowledge and skill in planning, organizing and directing programs for the care of individuals whose ability to function is impaired or threatened by disease or injury. Physical therapy focuses primarily on those individuals whose potential or actual impairment is related to the neuro-musculoskeletal, pulmonary, and cardiovascular systems. It focuses on methods of evaluating the functions of these systems; and on the selection of appropriate therapeutic procedures to prevent, maintain, improve, or restore these functions.

DEGREE PROGRAM

The program leading to the Bachelor of Science in Physical Therapy is offered by the College of Pharmacy and Allied Health Professions of Wayne State University in cooperation with the College of Liberal Arts and the School of Medicine.

It is recommended that students applying for admission to the preprofessional program have the following high school courses: biology, chemistry, language, physics, geometry and intermediate algebra. Freshmen and transfer students may obtain the application forms for admission to the College of Liberal Arts from the Office of Admissions of the University.

Students who are interested in entering the professional program in physical therapy must apply for admission to the Department of Physical Therapy for information and the application forms. Students admitted to the professional program must have completed all prerequisite courses or the equivalent, have a minimum of 2.5₄ grade point average, be in good health and possess the personal qualifications necessary for the professional responsibilities of a physical therapist.

A personal interview is recommended for all qualified applicants. The professional program begins in the fall quarter of each year. The senior clinical education program extends into the August following the completion of the academic program. Thirty students are accepted.

The program of study in physical therapy is approved by the Council on Medical Education of the American Medical Association, in collaboration with the American Physical Therapy Association. Graduates of the program are eligible to take physical therapy licensure and registration examinations, and are eligible for active membership in the American Physical Therapy Association.

Preprofessional Program

First and Second Years

Electives

	<i>credits</i>
(Such as language, social science or natural science)	12
English 0150	4
English elective	4
Speech 0200	4

Humanities

Humanities electives	12
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Natural Sciences

Biology 0103, 0160, 0271	16
Chemistry 0107, 0108	9
Mathematics 0180	5
Physics 0213, 0214, 0215	12
Psychology 0198, 0330, 0340	12

Social Sciences

Political Science 0101	4
Sociology 0201	4
Anthropology 0211	4

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Professional Program

Courses in the professional program are taken in the College of Pharmacy and Allied Health Professions.

Third Year

	<i>credits</i>
Anatomy 0320	5
Allied Health Programs 0340	3
Allied Health Programs 0530	4
Allied Health Programs 0550	4
Allied Health Programs 0551	4
Interdisciplinary Health Sciences 0310	5
Interdisciplinary Health Sciences 0320	5
Interdisciplinary Health Sciences 0321	1
Interdisciplinary Health Sciences 0331	3
Physical Therapy 0332	4

Physical Therapy 0333	Therapeutic Exercise II	3
Physical Therapy 0350	Evaluation Procedures	3
Physical Therapy 0355	Applied Physiology	3
Physical Therapy 0360	Principles of Basic Movements	2
Physical Therapy 0361	Physical Agents I	3
Physical Therapy 0363	Fundamentals of Patient Care	2
Physical Therapy 0364	Clinical Correlation I	1
Physical Therapy 0371	Biomechanics	3

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Fourth Year

		<i>credits</i>
Allied Health Programs 0350	Social and Organizational Aspects of Health Care	3
Physical Therapy 0351	Rehabilitation Procedures	4
Physical Therapy 0362	Physical Agents II	3
Physical Therapy 0400	Physical Therapy Organization and Management	2
Physical Therapy 0401	Clinical Education I	3
Physical Therapy 0402	Clinical Correlation II	2
Physical Therapy 0404	Clinical Education II	3
Physical Therapy 0405	Clinical Education III	12
Physical Therapy 0406	Clinical Correlation III	2
Physical Therapy 0470	Introduction to Research	2
Physical Therapy 0471	Directed Study	3
Physical Therapy 0472	Seminar in Physical Therapy	2

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Senior Rule Admission—Senior students with a 3.0 honor point average may elect a directed student program for graduate credit.

Students who qualify and are recommended by the department will be given a "temporary" admission to the Graduate Division for one quarter. A final transcript showing the bachelor's degree must be submitted to the Office of Graduate Admissions before regular status as a graduate student can be authorized.

RADIATION TECHNOLOGY

Office: 227 Health Sciences Building

Acting Chairman: Murray Boles

PART-TIME INSTRUCTOR

Sheryl Janiec

ADJUNCT ASSISTANT PROFESSOR

Murray Boles

LECTURER

May Lou Gibbs

CONTRIBUTING LECTURERS

Lenore Andres, Shirley Headapohl, Joseph Mantel, Cheryl Martin, James Scott, Joel E. White

CLINICAL EDUCATION SUPERVISORS

Cynthia Lindsey, Margaret Thompson

At the present time the College of Pharmacy and Allied Health Professions offers the specialization in radiation therapy technology. Programs in diagnostic radiologic technology and nuclear medicine technology are being planned for the future; persons interested in these specialties are advised to contact the Department Chairman.

Radiation therapy technology is a health care science which utilizes ionizing radiation for therapeutic treatment of oncological diseases. This is a field for men and women with a basic understanding of mathematics and science. It demands emotionally mature individuals who have the desire to assist in the management of malignant diseases.

The radiation therapy technology program at Wayne State University provides the student with the academic knowledge and specialized skills required by the profession. Among the duties which the radiation therapy technologist is commonly required to perform are: localization of tumor volume by radiography, handling all types of radioactive material, and ability to operate sophisticated machinery to deliver accurately the prescribed doses of radiation for the various treatment procedures.

Electives in the senior year will allow the student to specialize in one of three areas in the field of therapeutic radiology technology — supervision (business and administrative courses), teaching (education courses), or staff therapeutic radiology technology (additional science courses).

DEGREE PROGRAM

Bachelor of Science in Radiation Technology

The preprofessional program in radiation therapy technology is taken in the College of Liberal Arts, and all students must

apply to that College for admission. Students who plan to enter this program should have included in their high school programs at least three years of English, one year of algebra, one year of plane geometry, and at least one course in laboratory science.

Students are admitted to the professional curriculum in September only. The student should make application to the College of Pharmacy and Allied Health Professions in the sophomore year. For admission to the professional radiation therapy technology program, applicants must have acquired a minimum of ninety quarter credit hours (or their equivalent) and have completed all equivalent preprofessional course requirements. Students admitted to the professional program must have an honor point average of 2.5 or better. (A=4.0). To be considered, all applicants must have taken the Allied Health Professions Admissions Test (AHPAT) no later than March of the year in which admission is sought. Application forms and information can be obtained from the Admissions Office, College of Pharmacy and Allied Health Professions.

The program is limited in the number of applicants that can be accepted, depending on the openings available in clinical facilities, where much of the clinical practice is conducted at a 1:1 or 1:2 faculty-student ratio.

Although academic achievement is important, personal qualities are considered of equal importance since the students selected will eventually work as members of a team in the delivery of health care. Therefore, criteria for selection is based on qualities of maturity, motivation, knowledge of the profession, ability to communicate, personal integrity, and empathy for others. Evidence of good physical and mental health is required. Consequently, recommendations from faculty and academic advisers, as well as a personal interview, are given weight in the selection of candidates by the Admissions Committee. Because of the heavy psychological demands involved in the practice of the profession of radiation therapy technology, each applicant will be scheduled for a mandatory, full-day site visit at one of the clinical affiliate hospitals. This is to permit potential candidates to decide before admission to the professional program whether or not they themselves feel suited to the field of cancer therapy.

The professional program requires full-time enrollment and includes approximately twenty hours per week of clinical experience in the radiation therapy technology department of one of the hospital affiliates of the program. The curriculum outlined below, including a minimum of 180 credits, leads to the degree of Bachelor of Science in Radiation Technology.

This program fulfills the requirements for certification in Radiation Therapy Technology as established by the Council in Medical Education of the American Medical Association in collaboration with the American College of Radiology and the American Society of Radiologic Technology. Graduates are eligible to write the national certification examination in Radiation Therapy Technology which is conducted by the American Registry of Radiologic Technologists.

Preprofessional Program

Courses in the preprofessional program are taken under the direction of the College of Liberal Arts:

First and Second Years

	<i>credits</i>
Biology 0103, 0160, 0271	16
Biochemistry 0101	2
Chemistry 0101	5
English 0150	4
Mathematics 0180	5
Orientation to Health Professions	1
Physics 0213, 0214, 0215	12
Political Science 0101	4
Psychology 0198, 0330	8
Speech 0200	4
Electives: Behavioral-Social Sciences	16
Humanities or Sciences	14
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Professional Program

Courses in the professional program are taken in the College of Pharmacy and Allied Health Professions.

Third Year

	<i>credits</i>
Interdisciplinary Health Sciences 0310, 0311..... Human Anatomy	5
Interdisciplinary Health Sciences 0320	5
Interdisciplinary Health Sciences 0331	3
Radiation Technology 0300..... Clinical Care Procedures I	1
Radiation Technology 0301..... Radiation Physics I	3
Radiation Technology 0302..... Radiation Physics II	3
Radiation Technology 0303..... Radioisotope Physics	3
Radiation Technology 0311..... Technical Radiation Therapy I	2
Radiation Technology 0312..... Technical Radiation Therapy II	2
Radiation Technology 0313..... Clinical Oncology	2
Radiation Technology 0331..... Clinical Radiation Therapy I	5
Radiation Technology 0332..... Clinical Radiation Therapy II	5
Radiation Technology 0333..... Clinical Radiation Therapy III	5
Radiation Technology 0334..... Clinical Radiation Therapy IV	5
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Fourth Year

	<i>credits</i>
Biology 0500	3
Allied Health Programs 0350..... Social and Organizational Aspects of Health Care	3
Radiation Technology 0411..... Treatment Planning I	2
Radiation Technology 0412..... Treatment Planning II	2
Radiation Technology 0413..... Treatment Planning III	2
Radiation Technology 0414..... Tumor Pathology	2
Radiation Technology 0420..... Clinical Care Procedures II	1
Radiation Technology 0421..... Radiation Physics III	3
Radiation Technology 0422..... Radium Physics	3
Radiation Technology 0435..... Clinical Radiation Therapy V	5
Radiation Technology 0436..... Clinical Radiation Therapy VI	5
Radiation Technology 0437..... Clinical Radiation Therapy VII	5
Radiation Technology 0438..... Clinical Radiation Therapy VIII	5
Electives	6-12
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COURSES OF INSTRUCTION¹

Allied Health Programs (AHP)

0340. Psychology of Disability. Cr. 3.

Prereq. or coreq: AHP 0550, consent of adviser. Correlation of personality development with the psychological problems of the sick and disabled.

0350. Social and Organizational Aspects of Health Care. Cr. 3.

Prereq: introductory sociology course. Health care systems, organization and financing of health care services and resources available.

0530. Applied Anatomy. Cr. 4.

Prereq: consent of adviser. Emphasis on human musculo-skeletal movement, fundamental to evaluation and exercise procedures; laboratory.

0550. Clinical Medicine I. Cr. 4.

Prereq: ANA 0320; coreq: IHS 0331 and consent of instructor. Survey of pathology, symptomatology, treatment of diseases or injuries in the following fields of medicine: general medicine, surgery, pediatrics, geriatrics, ophthalmology, otorhinolaryngology.

0551. Clinical Medicine II. Cr. 4.

Prereq: AHP 0550. Continuation of Allied Health Programs 0550 in the following fields of medicine: physical medicine and rehabilitation, neurology and orthopedics.

0720. Introduction to Research Methodology. Cr. 4.

Prereq: TBF 7663 or equiv. and consent of instructor. Basic research methodology for allied health professions.

Anatomy (ANA)

0320. Anatomy. Cr. 5.

Open only to students in Allied Health Programs. Prereq: consent of adviser. Dissection and prosection; emphasis on neuromusculo-skeletal system and functional correlation.

0331. Human Anatomy and Physiology. (8,5,2). Cr. 10.

Prereq: BIO 0103, elementary high school physics, chemistry or physical science elective. For physical education students. A basic anatomy and physiology course with detailed emphasis on the musculo-skeletal system.

Anesthesia (AN)

0300. Orientation. Cr. 0.

Prereq: BIO 0103, CHM 0104; Registered Nurse. Orientation to anesthesia and related departments; general information about anesthesia as a profession.

0310. History of Anesthesia: Ethics, Legal Aspects and Administration. Cr. 2.

Prereq: consent of adviser. Organization and administration of an anesthesia department; ethical and professional conduct.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

0340. Pharmacology of Anesthesia I. Cr. 3.

Prereq: BIO 0103, CHM 0104, Registered Nurse. Introductory course in the pharmacology of anesthetic agents and drugs used in conjunction with these agents.

0350. Applied Chemistry and Physics for the Anesthetist. Cr. 2.

Prereq: BIO 0103, CHM 0104, Registered Nurse. Review of fundamental chemistry and physics including mathematics. Application of their principles in relation to anesthesia. The physical basis for explosions and their prevention.

0360. Principles of Clinical Anesthesia I. Cr. 6.

Prereq: BIO 0103, CHM 0104, Registered Nurse. Principles and techniques for the use of an anesthetic machine, mechanical ventilators, electrocardiograph and electroencephalograph monitors, and all equipment pertaining to anesthesiology.

0361. Principles of Clinical Anesthesia II. Cr. 3.

Prereq: BIO 0103, CHM 0104, Registered Nurse; AN 0360 or consent of adviser. Preoperative evaluation of the patient for anesthesia and surgery. Various disease entities which may affect the choice and technique of anesthesia and common anesthetic complications.

0362. Principles of Clinical Anesthesia III. Cr. 2.

Prereq: AN 0361 or consent of adviser. Intricate techniques of anesthesia for pediatric, emergency, cardiovascular and neurological surgery.

0363. Respiratory Care. Cr. 3.

Prereq: AN 0360 or consent of adviser. Care of patients with respiratory deficiencies or abnormalities.

0370. Clinical Anesthesia Practicum I. Cr. 6-12 (Max. 48).

Credit only on completion of Anesthesia 0471. Prereq: consent of adviser. Supervised clinical training and experience in the administration of anesthesia in the operating room.

0371. Clinical Anesthesia Practicum II. Cr. 6-12 (Max. 48).

Credit only on completion of Anesthesia 0471. Prereq: consent of adviser. Continuation of Anesthesia 0370.

0372. Clinical Anesthesia Practicum III. Cr. 6-12 (Max. 48).

Credit only on completion of Anesthesia 0471. Prereq: consent of adviser. Continuation of Anesthesia 0371.

0420. Anatomy and Physiology for Anesthetists I. Cr. 5.

Prereq: BIO 0103, CHM 0104, Registered Nurse. Systems and functions of the human as anesthetics are introduced into the body and alter the physiology. Respiratory, circulatory and excretory systems.

0421. Anatomy and Physiology for Anesthetists II. Cr. 5.

Prereq: BIO 0103, CHM 0104, Registered Nurse. Continuation of Anesthesia 0420. Nervous and endocrine systems. Laboratory included.

0430. Anesthesia Seminar. Cr. 1-2 (Max. 8).

Prereq: consent of adviser. Survey of current practices and trends in the field of anesthesiology. Group discussion with student participation is encouraged.

0440. Pharmacology of Anesthesia II. Cr. 4.

Prereq: AN 0340 or consent of adviser. Drugs considered accessory to anesthesia, including autonomic agents, hypnotics and analeptics.

0441. Pharmacology of Anesthesia III. Cr. 3.

Prereq: consent of adviser. Biochemorphology, pharmacodynamics and biological disposition of inhalation, local and intravenous anesthetics.

0442. Pharmacology of Anesthesia IV. Cr. 3.

Prereq: consent of adviser. Continuation of Anesthesia 0441. Biochemorphology, pharmacodynamics and biological disposition of therapeutic agents which may alter the response of a patient to anesthesia.

0470. Clinical Anesthesia Practicum IV. Cr. 6-12 (Max. 48).

Credit only on completion of Anesthesia 0471. Prereq: BIO 0103, CHM 0104, Registered Nurse. Continuation of Anesthesia 0372. Actual administration of anesthetic agents to patients in the operating room under direct supervision.

0471. Clinical Anesthesia Practicum V. Cr. 6-12 (Max. 48).

Prereq: consent of adviser. Continuation of Anesthesia 0470. Further experience in the management of anesthesia.

Biochemistry (BCH)

0101. Introductory Biochemistry. Cr. 2.

Prereq: CHM 0101. Fundamentals of biochemistry, especially those areas of importance to students of occupational and physical therapy.

0501. General Biochemistry Lectures. (2,0). Cr. 2.

Prereq: quantitative analysis; organic chemistry; BIO 0271 or equiv. Principles of structure biochemistry, metabolism of nucleic acids and proteins emphasizing the mechanisms of biochemical homeostasis control and their role as a basis of human physiology and pathology.

0502. General Biochemistry Laboratory. Cr. 2.

Prereq: quantitative analysis; organic chemistry; BIO 0271 or equiv. Laboratory experience in the principles of quantitative technics of biochemical importance for undergraduate and graduate students in the ancillary medical sciences.

0503. General Biochemistry Lectures. Cr. 2.

Prereq: BCH 0501. Chemistry and metabolism of lipids, carbohydrates, and amino acids; regulation of metabolism vitamins.

0504. General Biochemistry Laboratory. (0,3). Cr. 2.

Prereq: BCH 0503. Glycolysis and incorporation of acetate into lipid, transamination, one carbon metabolism enzyme induction, metabolism of phosphate.

0505. General Biochemistry Lectures. (2,0). Cr. 2.

Prereq: BCH 0503. Biochemical principles involved in homeostasis and control of metabolism.

0506. General Biochemistry Laboratory. (0,6). Cr. 2.

Prereq: BCH 0504. Biochemical analysis of body fluids.

Full description of the courses listed below may be found in the School of Medicine section of this bulletin, page 490.

0701. General Biochemistry Lecture. Cr. 3 or 5.

0702. General Biochemistry Laboratory. Cr. 4.

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0703. General Biochemistry Lecture. Cr. 3 or 5.

0704. General Biochemistry Laboratory. Cr. 4.

0756. Selected Topics in Biochemistry. Cr. 3.

0762. Biological Macromolecules. Cr. 3.

0763. Analytical Techniques. Cr. 4.

0764. Enzymology. Cr. 3.

0766. Bioenergetics. Cr. 3.

Comparative Medicine (COM)

0555. Human Parasitology and Diagnostic Procedures I. (1,3). Cr. 2.

Prereq: senior or professional status in medical technology or consent of instructor. Credit only upon completion of Comparative Medicine 0556. Discussion and practical consideration of the organisms as disease agents in man, their epidemiological and pathological consequences and laboratory diagnostic methodology.

0556. Human Parasitology and Diagnostic Procedures II. (1,3). Cr. 2.

Prereq: COM 0555. A continuation of Comparative Medicine considering parasites as causative agents of human disease and laboratory diagnosis of these agents.

Immunology and Microbiology (I&M)

Full description of the courses listed below may be found in the School of Medicine section in this bulletin, page 490.

0551. Bacteriology and Immunology. Cr. 6.

0552. Pathogenic Fungi and Parasites. (2,6). Cr. 4.

0553. Pathogenic Organisms. Cr. 4.

0760. Principles of Immunology. (3,0). Cr. 4.

0780. Microbial Genetics. Cr. 3.

0792. Special Topics. Cr. 1-5.

Interdisciplinary Health Sciences (IHS)

Full description of the courses listed below may be found in the section of Pharmacy courses, page 546.

0310. (ANA 0310) Human Anatomy. Cr. 5.

0320. Human Physiology. Cr. 5.

0321. Human Physiology Laboratory. Cr. 1.

0330. Survey of Social and Organizational Aspects of Health Care. Cr. 3.

0331. Basic Mechanisms of Disease. Cr. 3.

Medical Technology (MT)

0208. Medical Technology Seminar. Cr. 1.

Offered for S and U grades only. Introduction to medical technology, its opportunities and responsibilities.

0301. Introduction to Electronics. Cr. 2.

Open only to juniors in medical technology program. An introduction to electricity and electronics beginning with fundamental laws and operation of circuit elements such as resistors, capacitors, vacuum tubes and transistors, and progressing to basic instrument component systems including power supplies, filter networks, amplifiers and readout devices. Principles of reading circuit diagrams and basic troubleshooting.

0302. Hematology I. (2,6). Cr. 4.

Open only to juniors in medical technology program. Basic study of the blood forming organs and the components of blood; explanation of basic hematological procedures and accompanying laboratory exercises currently employed in the clinical lab.

0303. Hemostasis. (2,6). Cr. 4.

Open only to juniors in medical technology program. Provides theoretical (lecture) and practical (laboratory) information on hemostasis, coagulation and fibrinolysis.

0304. Principles of Blood Banking. (2,6). Cr. 4.

Open only to juniors in medical technology program. Theory and practice of procedures employed in the clinical blood bank. Survey of the organization and operation of a blood bank.

0305. Hematology II. (2,6). Cr. 4.

Prereq: MT 0302. In-depth study of blood and blood forming organs (normal and pathological) from the standpoint of interpretation and diagnosis.

0306. Clinical Analysis. (3,3). Cr. 1-4.

Open only to juniors in medical technology program. Theory and practice of diagnostic analysis of blood and body fluids. Correlation of test results with pathophysiology.

0309. Medical Technology Professional Seminar. Cr. 1.

Open only to juniors in medical technology program. Weekly group discussion on medical technology matters. Medical ethics and professionalism.

0400. Clinical Hematology. Cr. 9.

Open only to seniors in medical technology program. Theory and principles for evaluation of the quantity, morphology and function of cellular components of blood together with assessment of coagulation factors.

0401. Clinical Chemistry. Cr. 14.

Open only to seniors in medical technology program. Biochemical analyses of blood and other body fluids to determine levels of various chemical substances. Automation, special chemistry, and nuclear medicine.

0402. Clinical Blood Bank. Cr. 7.

Open only to seniors in medical technology program. Theory and principles involving antigen-antibody reactions of blood. Obtaining, storage, and preparation of whole blood or blood components for infusion.

0403. Clinical Microbiology. Cr. 10.

Open only to seniors in medical technology program. Obtaining, culturing, identification and quantitation of microorganisms caus-

ing infection or infestation. Determination of most effective antibiotics.

0404. Laboratory Administration and Teaching. (1,3). Cr. 2.

Open only to seniors in medical technology program. Discussions of interaction with patients, fellow workers, employers and other allied health professions; professional responsibility of the medical technologist.

0405. Hematology III. (1,3). Cr. 2.

Open only to seniors in medical technology program. Emphasis on pediatric hematology with clinical experience provided; study of chemical alterations associated with hematological conditions and diseases.

0406. Clinical Serology. Cr. 4.

Open only to seniors in medical technology program. Theory and procedures for identification of antibodies produced as a result of infection by microorganisms, collagen diseases, and auto-immune disorders.

0407. Clinical Methods. Cr. 2.

Open only to seniors in medical technology program. Various methods employed in the clinical laboratory such as phlebotomy, urinalysis, microscopy, and emergency laboratory.

0507. Instrumentation. (2,3). Cr. 3.

Prereq: MT 0301 or consent of instructor. Lectures cover the basic theories utilized in clinical laboratory instrumentation. Laboratory exercises with a variety of instruments.

0702. Pathophysiology of Hemostasis. Cr. 2.

Open only to graduates in medical technology program. Review of the basic mechanism of hemostasis; the mechanism and management of bleeding and coagulation disorders.

0703. Advanced Blood Banking Theory. Cr. 2-8.

Open only to graduates in immunohematology curriculum. Governmental regulations related to the preparation and distribution of blood products. In-depth study of blood group systems and procedures necessary to investigate blood bank problems.

0704. Clinical Immunohematology. Cr. 3 (12 required).

Prereq: completion of first academic year. Open only to graduates in immunohematology curriculum. Practical experience covering all aspects of managing and operating a transfusion service. Includes blood procurement, processing, solution of technical and managerial problems.

0705. Problem Solving Seminar. Cr. 1 (Max. 6).

Open only to graduates in immunohematology curriculum. Medium for integrating and applying previous and current didactic and practical training in the solution of simple and complex immunohematological problems.

0707. Graduate Instrumentation. Cr. 4.

In-depth analysis and application of theories of operation, maintenance, and troubleshooting of analytical clinical laboratory instrumentation.

0709. Instruction in Teaching Techniques. Cr. 4.

Prereq: consent of adviser. Instruction in planning assignments, testing evaluation.

0710. Hematology. Cr. 2.

Open only to graduates in medical technology program. Study of the classification, differential diagnosis, pathophysiology, and hemo-replacement therapy of diseases involving red and white blood cells.

0711. Current Problems and Regulations in Hospital Laboratory Functions. Cr. 4.

Prereq: consent of instructor. Open only to graduates in medical technology program. Study of the organizational, fiscal, staffing, and disciplinary problems facing the clinical laboratory manager; legislative and regulatory bodies affecting laboratory operations.

0790. Directed Study in Clinical Instrumentation and Electronics. Cr. 1-4.

Prereq: consent of instructor; coreq: BCH 0761. Instruction and laboratory work in areas relating to medical technology. Directed study with laboratory application in medical technology in areas of clinical instrumentation and electronics.

0796. Directed Study in Medical Technology Instruction. Cr. 1-3.
Open only to graduates in medical technology program. Weekly participation and involvement in teaching an undergraduate medical technology course.

0797. Medical Technology Seminar. Cr. 1 (Max. 3).
Open only to graduates in medical technology program. Advanced methods and current issues pertaining to medical technology.

0798. Terminal Project. Cr. 1-5.

Open only to graduates in medical technology program. The student must make an original contribution to medical technology enlarging or improving the areas of administration, education, or immunohematology. The project must be presented in written and oral form.

Occupational Therapy (O T)

0301. Occupational Therapy Assessment and Performance Techniques I. (2,6). Cr. 5.

Prereq: admission to the occupational therapy professional program. Observation, interview, communication and evaluation skills needed by the occupational therapist and gained through actual interaction with normal individuals from infancy through latency periods.

0302. Occupational Therapy Assessment and Performance Techniques II. (3,6). Cr. 6.

Continuation of Occupational Therapy 0301. Interaction with normal individuals in late childhood through senescence.

***0304. Therapeutic Activities. Cr. 3.**

Prereq: consent of adviser. Craft techniques. Adaptation of equipment and procedures.

0307. Roles and Functions I. Cr. 4.

Prereq: admission to occupational therapy professional program. Introduction to the profession and to the processes and procedures utilized by the occupational therapist.

0310. Clinical Psychiatry. Cr. 4.

Prereq: PSY 0430 and consent of adviser. Study of the major categories of psychiatric conditions and their clinical treatment including psychiatric interview and crisis intervention techniques. Lecture, demonstration and participation.

*Second-year students in the academic year 1977-78 will take these courses in order to complete the appropriate sequence of their professional program. These courses will be discontinued after spring quarter 1978. For information about the 1977-78 second year professional program, see the 1975-77 University Bulletin.

***0311. Techniques and Procedures I. Cr. 3.**

Prereq: O T 0310. Application of occupational therapy to treatment of psychiatric patients.

0318. Life Tasks I. Cr. 3.

Prereq: SPH 0520 and consent of adviser. Meaning and value of activity: play, leisure and work in the life of man; activity and the relationship of activity to life space and life-value; identification and analysis of tasks and activities. Use of play and leisure activities in occupational therapy, as well as leading functions and methodology of program planning.

0319. Life Tasks II. Cr. 4.

Prereq: O T 0302, 0318. Continuation of O T 0318. Process involved in selected work activities; factors which influence occupational choice and readiness.

***0332. Therapeutic Exercise I. (2,2). Cr. 3.**

Prereq: AHP 0530. Instruction and laboratory experience in techniques of therapeutic exercise in the area of physical function.

***0350. Rehabilitation Procedures I. Cr. 3.**

Prereq: AHP 0530, consent of adviser. Principles of evaluation and techniques used by the occupational therapist in the area of physical dysfunction: emphasis on activities of daily living, home making, work simplification and amputee training.

0407. Roles and Functions II. Cr. 4.

Prereq: consent of adviser. Organizational and administrative structure and functions of occupational therapy service, program with emphasis on communication techniques, personnel management and supervision, program and space planning, budgeting and legal implications of a service unit. Basic introduction to research and statistical methods.

0418. Life Tasks III. Cr. 4.

Prereq: O T 0319, 0420, 0421. Continuation of O T 0319. Performance, adaptation and utilization of processes involved in selected creative and manual tasks and activities which have therapeutic value. Principles and methods of teaching appropriate to the therapist.

0419. Life Tasks IV. Cr. 4.

Prereq: O T 0418, 0422. Continuation of O T 0418. Evaluation of atypical individual activity in daily living. Methods and techniques employed to develop individual client's independence.

0420. Theory and Practice I. Cr. 4.

Prereq: O T 0310 and consent of adviser. Occupational therapy in mental health practice; evaluation, treatment planning, reporting and an overview of mental health theories. Lecture, role participation, and field experience.

0421. Theory and Practice II. Cr. 4.

Prereq: AHP 0530 and consent of adviser. Instruction, laboratory and field experience in techniques of evaluation, therapeutic exercise and treatment procedures in areas of physical dysfunction.

0422. Theory and Practice III. Cr. 4.

Prereq: AHP 0530 and consent of adviser. Principles of evaluation, use and fabrication of orthotic, prosthetic and assistive devices. Lecture, demonstration and laboratory practice.

0423. Theory and Practice IV. Cr. 4.

Prereq: O T 0421 and consent of adviser. Principles and practice of evaluation and treatment for sensorimotor dysfunction and sensory integration. Lecture, demonstration and field experience.

0425. Occupational Therapy Seminar. Cr. 4.

Prereq: consent of adviser. Correlation of social, cultural, physical, economic and psychological aspects of illnesses with occupational therapy theory and practice. Discussion and field experience.

0430. Directed Study. Cr. 1-3 (Max. 12).

Prereq: consent of adviser.

0440. Field Work I. Psychosocial. Cr. 8.

Credit only on completion of O T 0441. Prereq: satisfactory completion of all didactic course requirements and consent of adviser. Three months of supervised field work experience in affiliated health care agencies.

0441. Field Work II. Physical Dysfunction. Cr. 8.

Credit only on completion of O T 0440. Prereq: satisfactory completion of all didactic course work and consent of adviser. Three months of supervised field work experience in affiliated health care agencies.

***0506. Therapeutic Activities III. Cr. 3.**

Prereq: AHP 0530, consent of adviser. Craft techniques; adaptations of equipment and procedures in the use of leather, metal, and ceramics as therapy.

***0507. Therapeutic Activities IV. Cr. 3.**

Prereq. or coreq: O T 0332, consent of adviser. Craft techniques; adaptations of equipment and procedures.

***0508. Therapeutic Activities V. (0,6). Cr. 3.**

Prereq. or coreq: O T 0332, consent of adviser. Craft techniques; adaptations of equipment and procedures.

***0515. Techniques and Procedures II. (1,3). Cr. 3.**

Prereq. or coreq: O T 0311, consent of adviser. Clinical experience with techniques and media of psychiatric occupational therapy.

***0533. Therapeutic Exercise II. (1,3). Cr. 3.**

Prereq: AHP 0530, consent of adviser. To provide a depth of theoretical and practical experience in specialized procedures used in the area of physical dysfunction.

***0551. Rehabilitation Procedures II. Cr. 3.**

Prereq: AHP 0530, consent of adviser. Principles of evaluation and techniques used by the occupational therapist in the area of physical dysfunction; emphasis on pre-vocational evaluation and assistive devices.

***0555. Organization and Administration. Cr. 4.**

Prereq: consent of adviser. Principles of organization and administration of occupational therapy departments.

0730. Professional Literature. Cr. 4.

Prereq: consent of adviser. Analysis and appraisal of current occupational therapy and related professional literature. Overall approach to research reporting.

0740. Seminar in Current Problems and Trends in Occupational Therapy. Cr. 2-4 (Max. 10).

Prereq: consent of adviser. Concepts and theories in specific areas of occupational therapy. Current developments, problems and research. Topics to be announced in *Schedule of Classes*.

*Second-year students in the academic year 1977-78 will take these courses in order to complete the appropriate sequence of their professional program. These courses will be discontinued after spring quarter 1978. For information about the 1977-78 second year professional program, see the 1975-77 University Bulletin.

0750. Specialist Roles in Occupational Therapy. Cr. 2-4 (Max. 10).

Prereq: consent of adviser. Philosophy, procedures, and skills of the occupational therapy specialist. Situations and problems encountered.

0770. Terminal Seminar in Occupational Therapy. Cr. 3.

Prereq: TBF 7663, 7664 or equiv. Refinement of research techniques in relation to effective development of study for master's thesis or essay.

0775. Professional Field Experience. Cr. 4.

Prereq: consent of adviser, twenty-eight graduate credits; prereq. or coreq: O T 0770. Supervised placement in area of specialization.

0790. Directed Study. Cr. 2-4 (Max. 8).

Prereq: consent of adviser.

0799. Master's Essay Direction. Cr. 3.

Prereq: O T 0770 and consent of adviser.

0899. Master's Thesis Research and Direction.

Cr. 12 (12 required).

Prereq: O T 0770 and consent of adviser.

Pathology (PTH)

The course below may be found in the School of Medicine section of this bulletin, page 495.

0500. Fundamentals of Pathology. Cr. 2.

Physical Therapy (P T)

0332. Therapeutic Exercise I. (3,6). Cr. 4.

Prereq: consent of adviser. Theoretical aspects; principles and techniques of basic exercise; application to practice of physical therapy. Laboratory.

0333. Therapeutic Exercise II. (2,4). Cr. 3.

Prereq: P T 0332. Continuation of Physical Therapy 0332. Theory, principles, and application of the neurophysiologic approach to exercise for specialized problems. Laboratory practice.

0350. Evaluation Procedures. (2,4). Cr. 3.

Prereq: consent of adviser. Basic principles and techniques of patient evaluation. Laboratory practice.

0351. Rehabilitation Procedures. (2,6). Cr. 4.

Prereq: P T 0350. Theory and principles of treatment of severely handicapped patients with emphasis on orthotic and prosthetic equipment; and program planning.

0355. Applied Physiology. (2,4). Cr. 3.

Prereq: IHS 0320. Physiological principles related to disease and injury, and physical therapy procedures. Laboratory observations and investigations.

0360. Principles of Basic Movements. (1,5). Cr. 2.

Principles and techniques of basic movements performed by the physical therapist; aspects of massage; active and passive movements. Laboratory practice.

0361. Physical Agents I. (2,3). Cr. 3.

Prereq: consent of adviser. Principles and practice of low voltage currents in evaluation and treatment. Laboratory practice.

0362. Physical Agents II. (3,6). Cr. 3.

Prereq: consent of adviser. Physical, physiological and therapeutic principles in the application of heat, cold, light and hydrotherapy. Laboratory practice.

0363. Fundamentals of Patient Care. (2,3). Cr. 2.

Prereq: consent of adviser. Theory and practice of basic nursing procedures used by the physical therapist; care of medical emergencies which arise in the physical therapy department. Laboratory practice.

0364. Clinical Correlation I. (2,3). Cr. 1.

Prereq: consent of adviser. Basic principles and techniques of verbal, non-verbal, and written communications and the problem-solving process as they relate to physical therapy including observational skills, teaching techniques, interview skills and professional interpersonal communications.

0371. Biomechanics. (2,4). Cr. 3.

Prereq: PHY 0213, 0214, 0215, MAT 0180 and consent of adviser. Study of external and internal forces as they affect stability, tissue damage, body movement abnormalities, and gait. Laboratory.

0400. Physical Therapy Organization and Management. (2,0). Cr. 2.

Prereq: consent of adviser. Organization and administration of a physical therapy department; ethical and professional conduct; inter- and intra-professional relationships.

0401. Clinical Education I. (0,12). Cr. 3.

Prereq: consent of adviser. Offered for S and U grades only. Orientation to clinical education and practice; observational skills; correlation of basic principles and skills of patient care and treatment. Supervised experience in clinical environment. Activity reports required.

0402. Clinical Correlation II. (2,2). Cr. 2.

Prereq: consent of adviser. Lecture and laboratory series of medical and surgical conditions related to the practice of physical therapy with emphasis on orthopedic conditions. Laboratory practice.

0404. Clinical Education II. (0,12). Cr. 3.

Prereq: PT 0401, consent of adviser. Offered for S and U grades only. Continuation of Physical Therapy 0401. Supervised experience in clinical environments. A case study and activity reports are required.

0405. Clinical Education III. Cr. 12.

Prereq: consent of adviser, P T 0404. Offered for S and U grades only. Continuation of Physical Therapy 0404. Full-time participation in clinical settings. Three clinical rotations required.

0406. Clinical Correlation III. (1,1). Cr. 2.

Prereq: PT 0402. Continuation of Physical Therapy 0402. A lecture and laboratory series of medical and surgical conditions related to the practice of physical therapy with emphasis on cardiopulmonary rehabilitation and athletic medicine. Laboratory practice.

0470. Introduction to Research. (1,2). Cr. 2.

Prereq: consent of adviser. Techniques of research methodology with emphasis on the selection, usage, and critical interpretation of statistical analysis. Computer usage. Techniques in project

design and experimental conduct. Written and oral reports of project required.

0471. Directed Study. Cr. 3.

Prereq: consent of adviser; first year professional course. Independent study involving critical analysis or review of therapy approach, methodology, technique. Development of scientific rationale for clinical procedures. Written reports required.

0472. Seminar in Physical Therapy. Cr. 2.

Prereq: consent of adviser. Exploration of contemporary physical therapy and health care.

Physiology (PSL)

0322. Physiology. (4,3). Cr. 5.

Prereq: consent of adviser. Emphasis on physiology of muscles, nerves, circulation, respiration.

0795. Research. Cr. 1-10 (Max. 10).

Prereq: consent of graduate adviser.

Radiation Technology (RT)

0300. Clinical Care Procedures I. Cr. 1.

Open only to radiation technology students. Nursing procedures pertinent to the care and examination of the cancer patient in the radiation therapy department.

0301. Radiation Physics I. Cr. 3.

Prereq: PHY 0213, 0214, 0215. Open only to radiation technology students. Basic characteristics of radiation particles and photo interactions of radiation with matter.

0302. Radiation Physics II. Cr. 3.

Prereq: RT 0301. Open only to radiation technology students. Principles of radiation exposure; description of treatment machines and radiation measuring devices; radioactivity and decay processes; radiation protection.

0303. Radiolotope Physics. Cr. 3.

Prereq: RT 0302. Open only to radiation technology students. Natural radioactivity; isotopes and nuclear structure; Geiger Muller counters; radiation measurement techniques; artificial radioactivity; nuclear reactions.

0311. Technical Radiation Therapy I. Cr. 2.

Open only to radiation technology students. Instruction correlated with clinical experience of clinical radiation therapy in the function and operation of radiation therapy machines and auxiliary equipment, such as immobilization devices, bolus materials, wedges, compensating filters, lead shields, and localization devices. Theory and application of diagnostic x-ray machines.

0312. Technical Radiation Therapy II. Cr. 2.

Prereq: RT 0311. Open only to radiation technology students. Instruction in the uses of and proper method of handling sealed sources of radioactive material. Techniques of teletherapy.

0313. Clinical Oncology. Cr. 2.

Prereq: R T 0312. Open only to radiation technology students. Principles of various qualities of radiation. Management of irradiation reactions relating to site, technique, and patient condition.

0331. Clinical Radiation Therapy I. Cr. 5.

Open only to radiation technology students. Practical application in a clinical setting of technical radiation therapy, involving patient care and delivery of prescribed doses of radiation.

0332. Clinical Radiation Therapy II. Cr. 5.

Open only to radiation technology students. Proper methods of operating radiation therapy machines and auxiliary devices.

0333. Clinical Radiation Therapy III. Cr. 5.

Supervised clinical experience in the utilization of treatment methods in a department of radiation therapy.

0334. Clinical Radiation Therapy IV. Cr. 5.

Prereq: R T 0333. Continuation of Radiation Therapy 0333.

0411. Treatment Planning I. Cr. 2.

Prereq: R T 0313. Principles of radiosensitivity, therapeutic ratio, and tissue tolerance of irradiation.

0412. Treatment Planning II. Cr. 2.

Prereq: R T 0411. Tissue tolerance doses for certain anatomical sites, and treatment plans for the delivery of prescribed therapeutic doses of radiation to various anatomical sites.

0413. Treatment Planning III. Cr. 2.

Prereq: R T 0412. Continuation of Radiation Technology 0412. Treatment plans for the delivery of prescribed therapeutic doses of radiation to various anatomical sites.

0414. Tumor Pathology. Cr. 2.

Prereq: IHS 0331. Basic principles of neoplasia, including types of growth, causative factors, biological behavior, and the significance of staging procedures. Pathology of radiation injury.

0420. Clinical Care Procedures II. Cr. 1.

Prereq: R T 0300. Continuation of Radiation Technology 0300. The care and nursing management of the cancer patient in the radiation therapy department.

0421. Radiation Physics III. Cr. 3.

Prereq: R T 0303. Definitions of treatment planning and their dependencies; definitions of radiation units, radiation quantity and aids used in radiation therapy.

0422. Radium Physics. Cr. 3.

Prereq: R T 0421. Characteristics of radium and its substitutes; construction of radium sources; source application techniques; theoretical source calculations and systems.

0435. Clinical Radiation Therapy V. Cr. 5.

Prereq: R T 0334. Continuation of Radiation Technology 0334.

0436. Clinical Radiation Therapy VI. Cr. 5.

Prereq: R T 0435. Continuation of Radiation Technology 0435.

0437. Clinical Radiation Therapy VII. Cr. 5.

Prereq: R T 0436. Continuation of Radiation Technology 0436.

0438. Clinical Radiation Therapy VIII. Cr. 5.

Prereq: R T 0437. Continuation of Radiation Technology 0437.

College of Pharmacy and Allied Health Professions Directory

Dean 105 Health Sciences; telephone: 577-1574

Assistant Dean for Admissions and

Student Affairs . . . 328 Health Sciences; telephone: 577-1710

Graduate Officer . . . 633 Health Sciences; telephone: 577-0820

Registrar 303 Health Sciences; telephone: 577-1716

Pre-Professional Counselor

300 Shapero Hall; telephone: 577-4814

Educational Media Coordinator

517 Health Sciences; telephone: 577-1279

Business Manager . . . 101 Health Sciences; telephone: 577-1576

Faculty of Pharmacy

Deputy Dean 428 Health Sciences; telephone: 577-1708

Director of Continuing Education Programs

525 Health Sciences; telephone: 577-1715

Coordinator of Clinical Education and Research Programs

339 Health Sciences; telephone: 577-0824

Faculty of Allied Health Professions

Deputy Dean 103 Health Sciences; telephone: 577-1047

Anesthesia 406 Detroit General Hospital; telephone: 224-2133

Medical Technology . 231 Health Sciences; telephone: 577-1384

Occupational Therapy

311 Health Sciences; telephone: 577-1435

Physical Therapy . . . 439 Health Sciences; telephone: 577-1432

Radiation Technology

227 Health Sciences; telephone: 577-1137

or: B-26 Henry Ford Hospital; telephone: 876-1021

Mailing address for all offices:

College of Pharmacy and Allied Health Professions

Wayne State University

5980 Cass Avenue

Detroit, Michigan 48202



School of Social Work

DEAN: SIDNEY DILLICK

Foreword

SOCIAL WORK

Modern social work is concerned with the things that go wrong with society and its members. The social work profession is composed of people who want to tackle the major social problems of our industrial, urban society. It undertakes to repair breakdown in individuals, in groups and in communities. Its aim is to prevent societal and personal breakdown. Increasingly the profession is developing designs to enhance the functioning of society and its members.

The professional social worker uses the same basic principles whether he works with an individual, a group or a community. He is educated to assess the problem, to help plan and implement a solution and to evaluate the results.

The social worker must be knowledgeable about the goals, policies, functions and activities of the over-all service system with its strengths and shortcomings for meeting the needs of individuals, groups and communities. The social worker must be knowledgeable about the kinds and amounts of resources available, both those within his client and those provided by society in social institutions and in the service system. He must also be knowledgeable about what may or may not be achievable for his client. Liking people, believing in the worth of human beings, and wanting to help them are qualities of heart and mind essential to the practice of social work.

Enhancement of human functioning requires that normal development needs be met by properly functioning social institutions and by those universally used services which comprise the "social utilities." More effective treatment and control of "social pathologies" also require changes in social institutions and in the service system. One major problem, racism, has long been ignored by society and the profession. Its impact on the lives and development of both non-white and white individuals, families and communities which are either integrated or separated has been neglected. Knowledge about racism and ways to combat it are essential to the profession of social work. In the present period of great and rapid social change, the social work profession is actively engaged in helping to create public social policies which will not only assure needed expansion and realistic distribution of services, but will also change social institutions in accordance with changed social conditions.

Social work has long been familiar with the fact that social change, even change which represents advance, can be injurious to many people when it occurs as a consequence of uncontrolled social forces. Today the profession is seeking to harness the energy of social change in a deliberate, humane way. It is developing a conceptual framework for planning change in social institutions. Plans must be designed which articulate societal goals, and the policies and programs required to achieve them. The urgency of this task makes social planning one of the most exciting challenges of the social work profession.

Urban University Setting

The metropolitan area of Detroit provides an exceptionally rich and fascinating laboratory for the teaching, learning, and practicing of social work. Highly industrialized urban areas are close enough to suburban, semi-rural, and rural areas to enable the student to be aware of the total fabric of American community life. Social agencies and organizations operating in the Detroit area have to do with the usual kinds of social problems but must inevitably deal also with social problems affected by nationality, by racial and minority groups, by management-labor relationships, and by other social forces inherent in this kind of community. These agencies provide opportunities for an almost unlimited variety of experience for the social work student.

The School of Social Work, as an integral part of a large university, is able to draw heavily upon the total offerings of the University for the enrichment of its own curriculum. The variety of University resources makes it possible for the School of Social Work to offer considerable flexibility in curricula and in a wide range of emphases in professional education for social work.

Individual attention to each student is emphasized by the School and by its faculty. Through this individualization the complexities of the community and of the University become an asset to learning and professional growth.

ACCREDITATION

The undergraduate program leading to the Bachelor of Social Work degree and the graduate program leading to the Master of Social Work degree are fully accredited by the Council on Social Work Education, the authorized accrediting body for social work education.

STUDENT ORGANIZATION

The Student Organization is a unique and dynamic factor in the total program of the School of Social Work. It is involved in dealing with issues within the School as well as broader educational and social issues. The Student Organization is committed to a policy of advocacy against client dehumanization. Through the Organization students become involved in the policy-making and curriculum planning for the School. The Student Organization offers opportunities for students to work toward a more responsive social work education, which will enable them as social workers to serve the needs of clients and communities. A student newspaper, weekly student lunches, other social and recreational activities, assistance in attendance at relevant conferences and participation in the National Federation of Student Social Workers are some of the ways in which the Student Organization puts students in touch with each other and with student activities.

ASSOCIATION OF BLACK SOCIAL WORK STUDENTS (ABSWS)

The Association of Black Social Work Students (ABSWS) is the Wayne State University School of Social Work Chapter of the National Association of Black Social Work Students.

The ABSWS involves itself in a number of educational, research and community services activities on a year round basis. ABSWS assists black students in making the adjustment to the School of Social Work and provides students with supportive educational services.

The Wayne State University ABSWS coordinates some of its activities with the Michigan ABSWS Inter-School Council (University of Michigan, Michigan State University, and Western Michigan University) which plans and implements programs and services which are usually directly related to the student chapters' educational concerns.

ABSWS works closely with the Detroit Chapter of the National Association of Black Social Workers (ABSW) in sponsoring forums, luncheons, conventions and fund raising events as well as a schedule of social and leisure time activities.

TRABAJADORES DE LA RAZA ESTUDIANTIL (T.R.E.)

T.R.E. is the organization of Latino social work students at the School of Social Work. The objectives of T.R.E. are to increase the number of Latino students and faculty in the School, to integrate the Latino experience into the School's policy and academic settings, to link community social work needs with School resources, and to provide a Latino student forum for coordination with the University community.

T.R.E. is the student component of Trabajadores de la Raza (T.R.). The Detroit T.R. chapter has assisted the School T.R.E. group's formation as has the national T.R. organization. In working with the School, social work professional groups, the Latino community and concerned agencies T.R.E. is maintaining an active participation in the development of social work roles for Latinos in the years to come.

ALUMNI ORGANIZATION

The Alumni Organization continues and strengthens School and professional identification. It keeps graduates informed about one another and about the School of Social Work through its newsletters, carries on promotional and interpretative activities, encourages professional development by sponsoring forums, institutes and workshops, conducts special activities to support the work of the School, and promotes fellowship among its members through its social programs.

PROGRAMS

The School of Social Work offers opportunity for study at the undergraduate and the graduate level to prepare students for practice in the profession of social work. Its principal programs lead to the Bachelor of Social Work degree and the Master of Social Work degree. Individual courses are also available at the freshman and sophomore level and post-degree courses are available to those who have been awarded the bachelor's and master's degrees. The School conducts special institutes and workshops for persons working in the field of social welfare.

BACHELOR OF SOCIAL WORK

The program of study which leads to the Bachelor of Social Work degree consists of six quarters of study at the junior and senior years. During each year about one-half of the curriculum is in professional courses in social work and about one-half is in corequisite courses and electives. One part of the professional component of the program is field work which is concurrent with class work. It is required that the student enroll in the entire professional component during any one quarter. It is the School's strong conviction that the integration of class work and field work is essential to development of professional competence in the practice of social work.

Students in the undergraduate program have field experience in many of the same agencies in which graduate students are placed. Some of these agencies participate in Learning Centers organized by the School around selected areas of social concern. (For a description of the Learning Centers, see page 585.) Currently, Learning Centers in community mental health, family functioning, health care, inner-city neighborhood services, rights of children and youth, social work in school systems, and substance abuse have offerings for students especially interested in these social problem areas.

Usually the six quarter program of class and field work is a program of full-time study extending over two successive academic years, beginning in the fall quarter. The number of students admitted to the program is limited.

ADMISSION

Applications for admission to the program may be submitted after the student has completed sixty quarter credit hours of work or its equivalent at the freshman and sophomore levels. Applications for admission to the program leading to the Bachelor of Social Work degree must be submitted to the Office of Admissions, Wayne State University, Detroit, Michigan 48202. Students who have already attended Wayne State University should apply directly to the School of Social Work.

Applications are reviewed only when all supporting materials have been received. Deadline for submission of applications and all supporting materials for September admission is May 31. Applications received after the closing date cannot be guaranteed processing.

Each applicant to the professional program leading to the Bachelor of Social Work degree must: (1) complete and forward to the Office of Admissions, Wayne State University, the form *Application for Undergraduate Admission*; (2) submit to the Office of Admissions, Wayne State University, directly from colleges and universities of recognized standing, official transcripts of all credits previously earned, whether in one or several educational institutions; and any other evidence that the student will at the time of his or her admission to the program have successfully completed a minimum of ninety quarter credit hours of work or its equivalent distributed as outlined below; (3) complete and forward to the School of Social Work, Office of Admissions, the form *Admission to the School of Social Work, Supplementary Information Form, Bachelor of Social Work Degree Program*; (4) have earned a minimum overall honor point average of 2.6; (5) show evidence to the Director of Admissions of the School of Social Work of suitability and fitness for the profession of Social Work and the ability to undertake successfully undergraduate professional education in Social Work.

Note: Students who have already attended Wayne State University should omit steps one and two above and, in addition, should request that the University Records Office send an advisers copy of their Wayne State University transcript to the School of Social Work, Office of Admissions. Students originally admitted to Wayne State University as a transfer student from another college or university should request the advising office of their present school or college to send a copy of *all* transcripts from all other institutions to the School of Social Work, Office of Admissions.



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The applicant may be required to present oneself for individual or group interview as part of the application process.

The ninety quarter credit hours of work or its equivalent in the freshman and sophomore levels must be distributed according to one of the following patterns as an admission requirement to the professional program in the junior and senior years. These patterns are exemplified by the College of Liberal Arts, by the Weekend College Program, the College of Lifelong Learning and by Monteith College. They are designated Pattern A, Pattern B and Pattern C, respectively.

Pre-Social Work

Pattern A

A. *Social Sciences* — 24 credits to be distributed as follows:

1. Anthropology — 4 credits
2. Economics — 4 credits
3. History — 4 credits
4. Political Science — 4 credits
5. Sociology — 8 credits

B. *Natural Science* — 18 credits to be distributed as follows:

1. Biology — 3 credits
2. Psychology — 3 courses (generally 12 credits); field practicum courses do not meet this requirement.
3. 3 to 5 credits to be selected from the following: Physical Science 0191, 0192, 0193; chemistry, geology, astronomy, physics, mathematics above Mathematics 0179

Pattern B

A. *Social Sciences* — 32 credits to be distributed as follows:

1. Varieties of Man — 8 credits
T.V. course and the related workshop
2. Ethnicity — 8 credits
T.V. course — "Culture, Community, Identity" and workshop, "Ethnicity in the City"
3. International and Domestic Conflict — 8 credits
T.V. course and the related workshop
4. Work and Society — 8 credits
T.V. course and the related workshop

B. *Humanities* — 16 credits to be distributed as follows:

1. Philosophy — 4 credits
2. 12 credits of any series which includes:
 - a. T.V. Course
 - b. Workshop
 - c. Conference

C. *Humanities* — 24 credits to be distributed as follows:

1. Philosophy — 4 credits
2. 4 credits to be selected from the following: humanities, classics, music and art, history, literature in a foreign language department, American Studies, English Literature

D. *English* — 8 credits to be distributed as follows:

1. Freshman composition — 4 credits
2. English elective — 0200 level or above — 4 credits

C. *Natural Science* — 22 credits to be distributed as follows:

1. 12 credits of a biology series which includes:
 - a. T.V. Course
 - b. Workshop
 - c. Conference
2. 12 credits of an energy series which includes:
 - a. T.V. Course
 - b. Workshop
 - c. Conference

D. *Freshman composition* or 0200 level writing course — 4 credits

E. *Psychology* — 2 courses (generally 8 credits). Field practicum courses do not meet this requirement.

Pattern C

A. *Science of Society* — 12 credits:
SCS 0221, 0222, 0223

B. *Natural Science* — 24 credits:
NS 0121, 0122, 0123, 0221, 0222, 0223

C. *Socio-Humanistic Studies* — 18 credits:
SHS 0121, 0122, 0123

D. *Psychology* — 3 courses (usually 12 credits):
Field practicum courses do not meet this requirement.

THE FOLLOWING APPLIES TO ALL PATTERNS:

Electives — *The student may select appropriate courses from any discipline in the College of Liberal Arts, in Monteth College divisional or interdivisional courses, in the Weekend College Program of the College of Lifelong Learning, and from such professional schools as the College of Education, the School of Business administration, the College of Nursing and the School of Social Work.*

English Proficiency Examination — Although the English Proficiency Examination is not required for admission to the program leading to the Bachelor of Social Work degree, students are encouraged to take the examination prior to making application to the program.

CURRICULA

The curriculum leading to the Bachelor of Social Work degree includes two major elements. Out of these is drawn specifically from professional subject matter in social work. The other element is of a general education nature drawn from related academic and professional disciplines.

The professional component of the curriculum is designed to interrelate practice and knowledge in the areas of social work methods, human behavior and the social environment, social welfare organization and policy, and research so that the student develops a holistic view. Social work practice is the generic social work method taught in the program. In the field work course the student may confront single individuals, individuals in families, groups, organizations and communities under stress. In other professional courses the student learns about the nature of stress and its effect upon individuals in the social environment and various approaches to reduction of stress and ways to help people enhance their skills in problem-solving. Some of these courses deal with social welfare policies and programs to prevent breakdown and to deal with dysfunction. In research courses the student takes a critical look at the methodology and results of research and their applications to practice.

Concurrent with the professional component the student enrolls in corequisite courses and electives to enhance the student's general education and knowledge of related professional disciplines.

SOCIAL WORK PRACTICE METHOD

For a description of the Social Work Practice curricula, see page 584.

The social work practice curriculum is offered at the undergraduate level during the junior and senior years for all students enrolled in the course of study leading to the Bachelor of Social Work degree. This curriculum has as its main objective the development of sound practice knowledge, values and skills in preparation for the responsibilities to be carried by the social work practitioner at the first level of professional competence. Field work placements are provided in a wide variety of agencies covering many of the major areas of social work concern, such as health, mental health, corrections, child welfare, education, substance abuse, needs of senior citizens and family functioning.

Required Curriculum — Junior Year

Professional Content —

First Quarter

	<i>credits</i>
SW 0301..... Social Work Practice Method I	2
SW 0311..... Human Development and Dysfunction I	2
SW 0489..... Field Practice in Social Work	3
	7

Second Quarter

SW 0302..... Social Work Practice Method II	2
SW 0312..... Human Development and Dysfunction II	2
SW 0332..... Social Welfare in the United States — Basic Concepts	2
SW 0489..... Field Practice in Social Work	3
	9

Third Quarter

SW 0303..... Social Work Practice Method III	2
SW 0333..... Social Welfare in the United States — Current Programs	2
SW 0340..... Research Methods for Social Workers	2
SW 0489..... Field Practice in Social Work	3
	9

Required Curriculum — Senior Year

Professional Content —

First Quarter

	<i>credits</i>
SW 0401..... Social Work Practice Method IV	2
SW 0433..... The Social Work Profession	2
SW 0489..... Field Practice in Social Work	6
	10

Second Quarter

SW 0402..... Social Work Practice Method V	2
SW 0440..... Seminar in Research for Social Workers	2
SW 0489..... Field Practice in Social Work	6
	9

Third Quarter

SW 0403.....	Social Work Practice Method VI	2
SW 0411.....	Social Functioning and the Effect of Stress.....	2
SW 0489.....	Field Practice in Social Work	6

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Corequisites and Electives — Junior and Senior Years

Corequisites — The corequisites for the program leading to the Bachelor of Social Work degree during the junior and senior years must be distributed according to one of the following patterns of general education. These patterns are exemplified by the College of Liberal Arts, the Weekend College Program, College of Lifelong Learning and Monteith College, and are designated Pattern A, Pattern B and Pattern C respectively.

Pattern A

A. 16 credits to be selected from at least two of the following:

1. Sociology — 0300 level or above
2. Psychology — 0300 level or above
3. Anthropology — 0300 level or above
4. Political Science — 0200 level or above

B. History 0287 — 4 credits to be taken in the fall quarter of the junior year

C. Statistics 0102 — 4 credits to be taken no later than the winter quarter of the junior year

Pattern B

A. Humanistic Studies—12 credits: HS 0332, 0333, 0334

B. Colloquium—8 credits: MON 0491, 0492

Pattern C

A. Social Science Theory and Method — 12 credits

B. Urban Humanities Theory and Method — 12 credits

C. History 0287 — 4 credits to be taken in the fall quarter of the junior year

D. Statistics 0102 — 4 credits to be taken no later than the winter quarter of the junior year

C. Senior Essay—12 credits: SCS 0481, 0482, 0483

Elementary Statistics — 4 credits to be taken no later than the winter quarter of the junior year

Electives — Electives are selected by students in consultation with their advisers.

DEGREE REQUIREMENTS

The Bachelor of Social Work degree requires satisfactory completion of a minimum of one hundred eighty credits. These comprise ninety credits in the freshman and sophomore years including prerequisite courses for admission to the professional component of the program and ninety credits in the junior and senior years including fifty-five credits in the professional component in field work and related courses and a minimum of thirty-six credits in corequisite and elective courses.

Each student must pass the English Proficiency Test in Composition by the end of the junior year for going into the senior year and subsequently for admission.

To be awarded a Bachelor of Social Work degree the student must achieve an overall honor point average of 2.0 during the junior and senior years.

Application for the degree must be filed no later than the day of the registration period for the quarter in which the student expects to complete the requirements for the degree. The applicant must be recommended for the degree by the faculty. The applicant is requested and expected to attend the commencement at which the Bachelor of Social Work degree is conferred.

MASTER OF SOCIAL WORK

The program of study which leads to the Master of Social Work degree consists of six quarters of full-time study, which field work is integrated and concurrent with class work. Students spend three days a week in the field and two days in classes.

Usually the six quarter program of class and field work extends over two successive academic years, beginning in the fall quarter. In recent years a limited number of students have been admitted in January to the full-time program leading to the degree of Master of Social Work, beginning in the winter quarter and continuing without interruption for six consecutive quarters. This is an elapsed time of eighteen months compared with twenty-two months for the regular program of two academic years. January admission leads to graduation in June of the following year. The admission of a class of students in January is determined on a year-to-year basis.

A maximum of twenty-four graduate credits from courses closely related to social work may be accepted toward the Master of Social Work degree if, in the judgment of the faculty, these credits are the equivalent of elective courses in the social work curriculum. Arrangements for enrollment in such courses may be made after the student has been admitted to the School of Social Work as a full-time student.

ADMISSION

Applications for admission for full-time study in the program leading to the Master of Social Work degree may be submitted as early as a year in advance of the term in which the student wishes to enter the School. Applications are reviewed only when all supporting materials have been received. Deadline for submission of applications for the full-time program and all supporting materials for September admission is March 31; for January admission it is August 31. Applications received after those dates cannot be guaranteed processing. Over the past several years the School has been unable to accommodate all qualified applicants in the full-time program leading to the Master of Social Work degree. The number of students admitted to the program is limited.

Each applicant to the full-time program leading to the Master of Social Work degree must: (1) complete and forward to the Office for Graduate Admissions, Wayne State University, *Graduate Admissions Application Form*; (2) submit to the Office for Graduate Admissions, Wayne State University, directly from their college or university, official transcripts of all credits previously earned, whether in one or several educational institutions; (3) complete and forward to the School of Social Work, Office of Admissions, the completed form, *Admission to the School of Social Work, Supplementary Information Form, Master of Social Work Degree Program*; (4) have completed forty-five quarter credits (thirty semester credits) in academic work distributed in the social and biological sciences and in the humanities; (5) effective fall quarter 1977, include in the forty-five quarter credits the successful completion of four quarter credits (or three semester credits) in statistics; (6) show evidence to the Director of Admissions of the School of Social Work of suitability and fitness for the profession and the ability to undertake successfully graduate professional education in Social Work.

Note: Students who have already been admitted to and registered in the Graduate Division of Wayne State University should omit steps one and two above and, in addition, should have sent directly to the School of Social Work, Office of Admissions, official transcripts from their college or university of all credits previously earned, whether in one or several educational institutions.

The applicant may be required to present oneself for an individual or group interview as part of the application process.

Advance Tuition Deposit

When an applicant has been offered admission to the full-time program leading to the Master of Social Work degree, the student must send an acceptance letter within the time stated in the letter of admission, together with a fifty-dollar advance tuition deposit. The advance tuition deposit will hold a place in the incoming class and will be applied to tuition fees for full-time registration. If the student does not enroll in the full-time program, which includes field work, the fifty-dollar deposit is nonrefundable after July 31 for September admission and after November 30 for January admission.

Advanced Standing

An applicant for admission to the Master of Social Work program who holds a Bachelor of Social Work degree from Wayne State University, if admitted, may be given advanced standing. Admission of B.S.W. graduates to the M.S.W. program is not automatic. The responsibility for deciding whether a holder of a B.S.W. degree shall or shall not be admitted to the graduate program rests with the School.

PART-TIME STUDY

Students may enroll in certain classes as pre-master's students on a part-time basis and will be permitted to accumulate a

maximum of eighteen credits. Pre-master's students may not enroll in the field work courses and in the corequisite methods courses. If the student is subsequently admitted as a full-time student, credits earned as a pre-master's student may be applied toward the degree but will not reduce the requirement of six quarters of integrated full-time study. Requirements for the Master of Social Work degree may not be completed through part-time study only.

ADMISSION TO PART-TIME STUDY

Applicants for pre-master's study must hold a baccalaureate degree from a college or university of recognized standing and have completed forty-five quarter credits (or thirty semester credits) of academic work distributed in the social and biological sciences and in the humanities. *Note:* Effective fall quarter, 1977, the forty-five quarter credits must include the successful completion of four quarter credits (three semester credits) in statistics for admission to the full-time program.

The applicant must: (1) complete and forward to the Office for Graduate Admission, Wayne State University, the *Graduate Admissions Application Form*; (2) submit to the Office for Graduate Admissions, Wayne State University, directly from their college or university, official transcripts of all credits previously earned, whether in one or several educational institutions.

Students applying for part-time study in the School of Social Work and who have already been admitted and registered in the Graduate Division of Wayne State University should consult the School of Social Work, Office of Admissions, relative to the procedure for change of status.

Deadline dates for application for admission for part-time study are published each quarter in the *Schedule of Classes*.

CURRICULA

In the program leading to the Master of Social Work degree the School offers a variety of curricula focused on social work practice with individuals, families, groups, communities and in Social Work Administration. The following descriptive statements include the required curriculum in each of the sequences. Students in consultation with their advisers also build their programs from other courses offered in the School and elsewhere in the University.

SOCIAL CASEWORK

Social casework is a method of social work which aims to provide service and to effect positive change when stress creates an imbalance between individual internal needs and external demands. Such imbalance may be reflected in personal and social dysfunction and maladaptive behavior, conflicts in the family, and difficulties in meeting the requirements of society and social institutions. Casework is a remedial, habilitative and rehabilitative activity which attempts to correct the imbalance in order to free, develop or enhance the

individual's or family's capacity to perform essential life tasks. When such imbalance is corrected it is assumed that energy is released for coping with life's tasks. Growth is encouraged for meeting new tasks as they arise in the life cycle.

Social casework, like all of social work, is based on knowledge about the biological, social, cultural and psychological functioning of individuals, the dynamics underlying their development, their social interaction and their social realities. It requires a deliberate process of study, exploration, and assessment leading to a plan of action. This includes the use of a range of techniques such as interviewing skills, therapeutic relationship, social resources, and selection of appropriate inter-ventive actions.

Students in the social casework sequence may have field work in any of the fields of social work practice, e.g., in child welfare, corrections, family welfare, industrial, medical, mental health, public welfare, public health, rehabilitation or school settings.

Required Curriculum — Social Casework

First Quarter

	credits
SW 0760 Social Casework I	2
SW 0731 Behavioral Base of Social Functioning	2
SW 0722 Social Welfare Organization in the United States	2
SW 0889 Field Work for Social Workers	8
	14

Second Quarter

SW 0761 Social Casework II	2
SW 0732 Environmental Base of Social Functioning	2
Social Welfare Organization and Policy Elective	2
SW 0889 Field Work for Social Workers	8
	14

Third Quarter

SW 0762 Social Casework III	2
SW 0800 An Overview of Psychopathology	2
Social Welfare Organization and Policy Elective	2
SW 0748 Research Methods in Social Work	2
SW 0889 Field Work for Social Workers	8
	16

Fourth Quarter

SW 0810 Social Casework IV	2
¹ SW 0733 Concept of Social Functioning	2
² SW 0831 Administration of Social Agencies I	2
³ SW 0895 Research Seminar	2
SW 0889 Field Work for Social Workers	8
	16

¹ Students may elect this course during the fourth, fifth or sixth quarter.
² Students may elect this course during the fourth or fifth quarter.
³ Students may elect a group project or individual thesis in lieu of the Research Seminar.

Fifth Quarter

SW 0811 Social Casework V	2
^a SW 0895 Research Seminar	2
SW 0889 Field Work for Social Workers	8

Sixth Quarter

SW 0844 or 0845 or 0847 or 0848 or 0849 or 0850 or 0851	2
SW 0879 Social Welfare Organization and Policy Seminar	2
SW 0889 Field Work for Social Workers	8

SOCIAL GROUP WORK

Social group work is that method of social work practice in which group experience is utilized by the social worker as the primary medium for effecting social functioning, individual growth and environmental change. The group work student learns to use the knowledge, values, purposes and skills common to all social work practice and in addition acquires special knowledge regarding group properties and processes, theory about helping processes in the group context and the use of program media to facilitate purposeful interaction.

Social group work practice is geared to meet the need for rehabilitation, prevention, socialization and environmental change services to individuals and groups of all ages. These services are not mutually exclusive. Rehabilitation services are designed to assist individuals who are currently unable to perform effectively their assigned and desired social roles. This is illustrated in group work practice with the mentally ill. Preventive services are designed for individuals confronted by unusual stresses which make them more susceptible to personal breakdown and deviant behavior. Such services are illustrated in group work practice with aged persons. Socialization services are designed to assist individuals to achieve their fullest potentials in a complex and changing world. Group work practice with adolescents who are seeking to identify who they are and where they are headed is illustrative of these socialization services.

Environmental change is designed for individuals and groups to help them develop competence in solving their community and social problems as illustrated by self-help and neighborhood development groups. The social group worker may also work with individuals, families and organizations to address particular service needs. The social group worker's helping activities take the form of interaction or relationship with members and the group, the facilitation of interpersonal relationships among members and the promotion of group action toward socially desirable goals.

Social group workers are employed in all fields of practice and all types of settings. Opportunities for field instruction currently include settlements and community centers, psychiatric hospitals, residential treatment centers, child guidance clinics, children's institutions, agencies serving the aged and youth-serving agencies. Students have opportunity for collaborative work with social workers practicing in these settings.

and community work, as well as with other helping professions, and the possibility of practice in one of the other social work methods.

Required Curriculum—Social Group Work

First Quarter

	<i>credits</i>
SW 0770..... Social Group Work I	3
SW 0731..... Behavioral Base of Social Functioning	2
SW 0722..... Social Welfare Organization in the United States	2
SW 0889..... Field Work for Social Workers	8
	15

Second Quarter

SW 0771..... Social Group Work II	2
SW 0773..... Structured Interactions in Social Work Practice	2
SW 0732..... Environmental Base of Social Functioning	2
Social Welfare Organization and Policy Elective	2
SW 0889..... Field Work for Social Workers	8
	16

Third Quarter

SW 0772..... Social Group Work III	2
SW 0800..... An Overview of Psychopathology	2
Social Welfare Organization and Policy Elective	2
SW 0748..... Research Methods in Social Work	2
SW 0889..... Field Work for Social Workers	8
	16

Fourth Quarter

SW 0822..... Social Group Work IV	2
¹ SW 0733..... Concept of Social Functioning	2
² SW 0831..... Administration of Social Agencies I	2
³ SW 0895..... Research Seminar	2
SW 0889..... Field Work for Social Workers	8
	16

Fifth Quarter

SW 0823..... Social Group Work V	2
⁴ SW 0895..... Research Seminar	2
SW 0889..... Field Work for Social Workers	8
	12

Sixth Quarter

SW 0824..... Social Group Work VI	2
SW 0879..... Social Welfare Organization and Policy Seminar	2
SW 0889..... Field Work for Social Workers	8
	12

¹ Students may elect this course during the fourth, fifth or sixth quarter.

² Students may elect this course during the fourth or fifth quarter.

³ Students may elect a group project or individual thesis in lieu of the Research Seminar.

COMMUNITY SOCIAL WORK

The School of Social Work offers a two-year full-time curriculum in social planning, community organization, community development, and social policy development called the community social work sequence.

This curriculum for professional education of social workers provides practice roles in areas such as urban social planning, housing and community development, comprehensive community health and comprehensive community mental health planning and program development, public and private sector coordination and planning for the aged, juvenile justice, political internships, youth movements, labor unions and minority (black and brown) community development.

The thrust of the program is directed toward intervention at several levels of community life: neighborhood, city, county, metropolis, state, region and national. The purpose of the curriculum is to teach practitioners a knowledge and skill base to affect and effect social change on a broad scale. Social work through its philosophy, methodologies and processes promotes the means by which all segments of human society can participate in community problem solving.

The curriculum is multi-disciplinary in nature. Building on the core of social work practice — including values, sanctions, objectives, knowledge and skills — requirements focus on providing students with a broad range of social science concepts. Ideas and knowledge are utilized from sociology, political science, economics, psychology, and anthropology. Courses are offered in the School of Social Work and in the related social science departments. Students are also expected to become familiar with related professions focusing on such community problems as city and regional planning, medical care and public health planning, and public administration. Elective courses are available.

Special field work placements are developed according to the unique interests of individual students. These placements often pioneer new opportunities in settings that may have never utilized social work professionals.

Required Curriculum—Community Social Work

First Quarter

	<i>credits</i>
SW 0780..... Community Social Work I	3
SW 0731..... Behavioral Base of Social Functioning	2
SW 0722..... Social Welfare Organization in the United States	2
SW 0889..... Field Work for Social Workers	8
	15

Second Quarter

SW 0781..... Community Social Work II	3
SW 0732..... Environmental Base of Social Functioning	2
Social Welfare Organization and Policy Elective	2
SW 0889..... Field Work for Social Workers	8
	15

Third Quarter

SW 0782..... Community Social Work III	3
Social Welfare Organization and Policy Elective	2
Human Behavior and the Social Environment Elective	2
SW 0748..... Research Methods in Social Work	2
SW 0889..... Field Work for Social Workers	8
	17

Fourth Quarter

SW 0841..... Community Social Work IV	3
¹ SW 0733..... Concept of Social Functioning	2
² SW 0831..... Administration of Social Agencies I	2
³ SW 0895..... Research Seminar	2
SW 0889..... Field Work for Social Workers	8
	17

Fifth Quarter

SW 0842..... Community Social Work V	3
³ SW 0895..... Research Seminar	2
SW 0889..... Field Work for Social Workers	8
	13

Sixth Quarter

SW 0843..... Community Social Work VI	3
SW 0879..... Social Welfare Organization and Policy Seminar	2
SW 0889..... Field Work for Social Workers	8
	13

SOCIAL WORK PRACTICE

Curricula in social work practice are designed to prepare students for the application of a wide variety of intervention procedures in line with today's practice demands and responsibilities.

The social work practice curricula consist of methods courses and related laboratory and field work experiences at both the undergraduate and graduate levels of study. The educational emphasis is on problem-focused social work practice. The student is helped to define a problem in social functioning and to assess its impact on individuals, families, small groups, social institutions, neighborhoods and communities, in order to select the most appropriate interventions; these may consist of direct services to clients and/or social change-oriented activity. The objectives may vary in each situation and may include, for example, sustaining an individual or family during a period of stress; rehabilitation and resocialization of a handicapped person or group; assisting a neighborhood to take action on its own behalf on such matters as improving the quality of education for the children in the community or the development of more adequate health services; the prevention of maladaptive behavior or family disorganization by development of meaningful leisure-

¹ Students may elect this course during the fourth, fifth or sixth quarter.

² Students may elect this course during the fourth or fifth quarter.

³ Students may elect a group project or individual thesis in lieu of the Research Seminar.

time activity programs or educational programs for alternative vocational goals for laid-off employees who are victims of problems of the economy.

The social work practice curricula emphasizes all of the elements basic to social work practice: the social work framework; the major concepts, principles and skills in observation, communication, interpersonal relationships, interviewing and group process; the problem-solving process in relation to the social systems with whom social workers interact — such as individuals, families, neighborhoods, institutions and communities; the selection and implementation of a variety of social work intervention approaches.

The social work practice curriculum at the graduate level consists of a one-year program designed for students with an interest in developing a basic foundation for competence in social work practice in their first year of study, to be supplemented in the second year by a specialization in an area of the student's choice: social casework, social group work, or community social work.

At the graduate level the educational process for students enrolled in the social work practice curriculum takes place in learning centers providing opportunities for social work practice with individuals, families, groups and communities

in relation to a wide range of problems in social functioning in such areas as health services and school systems. Problems to which students address themselves may include family dysfunction, substance abuse, health problems, learning disabilities and child abuse and neglect. Field work assignments in the learning centers engage the student actively with the people directly and indirectly involved with the problems and usually take such forms as individual and group counseling, counseling with family members and developing community resources. Assignments frequently provide opportunities for participation in development of social policies and procedures and developing effective working relationships among the helping professions and community resources.

Required Curriculum — Social Work Practice

First Quarter

SW 0740..... Social Work Practice I	3
SW 0731..... Behavioral Base of Social Functioning	2
SW 0722..... Social Welfare Organization in the United States	2
SW 0889..... Field Work for Social Workers	8

Second Quarter

SW 0741..... Social Work Practice II	3
SW 0732..... Environmental Base of Social Functioning	2
Social Welfare Organization and Policy Elective	2
SW 0889..... Field Work for Social Workers	8

Third Quarter

SW 0742..... Social Work Practice III	3
SW 0800..... Overview of Psychopathology	2
Social Welfare Organization and Policy Elective	2
SW 0748..... Research Methods in Social Work	2
SW 0889..... Field Work for Social Workers	8
	17

Second Year

(Fourth, Fifth and Sixth Quarters)

Enroll in methods sequence of choice and follow second year curriculum for the sequence.

SOCIAL WORK ADMINISTRATION

The program in social work administration is a full-time, one year curriculum offered as the second year of the two-year program leading to the Master of Social Work degree. Students admitted to the program select a first year course of study in any one of the following methods: social casework, social group work, social work practice or community social work. The program is designed for persons who have had significant work experience in social service organizations. The primary goal of the program is to prepare administrators who have been educated according to a model of social work administration which embodies the philosophic assumptions and value orientations basic to social work practice. Graduates will be prepared to assume middle management positions in social service organizations. Admission to the program will be highly selective for a limited number of students.

The curriculum in social work administration consists of both classroom instruction and a practicum in a social agency. Classroom instruction is intended to provide students with knowledge of the structure and behavior of social service organizations as well as to teach basic administrative skills. In the practicum, students assume responsibility for or assist in the administration of a special project, program or division of a social agency selected by the School. The field work placement site provides the opportunity for students to develop practical skills in such areas as data gathering, fact finding, planning, budgeting, program evaluation, leadership, supervision, personnel administration, grantsmanship, decision-making and coordination.

Admission Requirements

The following are the admission requirements for the program. The applicant must:

1. meet all requirements for admission to the program leading to the Master of Social Work degree;
2. have completed a minimum of one full year of full-time employment in a social welfare, health or education setting recognized as such by the School following receipt of the baccalaureate degree;

3. present oneself for an individual or group interview as part of the application process.

Prerequisite — A two-credit course in complex organizations (structures and processes of formal organization) — see SW 0620, is a prerequisite specifically for the second year program in Social Work Administration. If the student has not already completed such a course at the time of admission to the full-time program leading to the Master of Social Work degree, this course must be taken during the first year of the Master of Social Work degree program.

Required Curriculum — Social Work Administration

First Year — First, Second and Third Quarters

Enroll in social casework, social group work, social work practice or community social work methods sequence and follow first year curriculum for the sequence.

Fourth Quarter

	<i>credits</i>
SW 0864..... Methods in Social Work Administration I	2
SW 0874..... Financial Data Reports in Social Service Organizations	2
SW 0895..... Research Seminar	2
¹ SW 0733..... The Concept of Social Functioning	2
SW 0889..... Field Work for Social Workers	8
	16

Fifth Quarter

SW 0865..... Methods in Social Work Administration II	2
SW 0875..... Leadership and Supervision in Social Service Organizations	2
SW 0895..... Research Seminar	2
¹ Social Welfare Organization and Policy elective	2
SW 0889..... Field Work for Social Workers	8
	16

Sixth Quarter

SW 0866..... Methods in Social Work Administration III.....	2
SW 0876..... Personnel Administration in Social Service Organizations	2
SW 0867..... Social Work Administration Seminar	2
SW 0879..... Social Welfare Organization and Policy Seminar	2
SW 0889..... Field Work for Social Workers	8
	16

LEARNING CENTERS

Since the beginning of professional education in social work the practicum has been an essential component of the educational plan. The Learning Center is viewed as a means of organizing the practicum learning experience so that student-faculty defined learning objectives may be pursued with maximum opportunity for integration of practice experience

¹ Students may elect this course during the fourth, fifth or sixth quarter.

with academic content. The Learning Center provides for a synthesis of knowledge, values and skills in social work practice within a social problem area.

The Learning Center consists of the activities of faculty, students and staff of participating service agencies in a selected area of social concern. In addition to the service-carrying activities of students, and the related responsibilities of faculty and field staff, regular and special activities are devised by the participants under the guidance of the Learning Center Coordinator as part of the means for meeting the learning objectives of the practicum.

The form of each Learning Center differs as it is influenced by the nature of the social concern which it addresses and the kind of resources available. Uniformity among centers is based upon practice, knowledge and skills of the profession which are transferable from one social problem area to another.

Two-thirds of the graduate social work students and an increasing number of undergraduate students are placed in seven Learning Centers: Community Mental Health, Family Functioning, Health Care, Inner City Neighborhood Services, Rights of Children and Youth, Social Work in School Systems and Substance Abuse.

DEGREE REQUIREMENTS

The Master of Social Work degree requires satisfactory completion of a minimum of ninety credits at the graduate level, including forty-eight credits of field work, four credits in the research seminar or six credits in a group project or nine credits of individual thesis, and forty to fifty credits in other academic courses, depending on the sequence elected. The total usually will include more than the minimum of ninety credits.

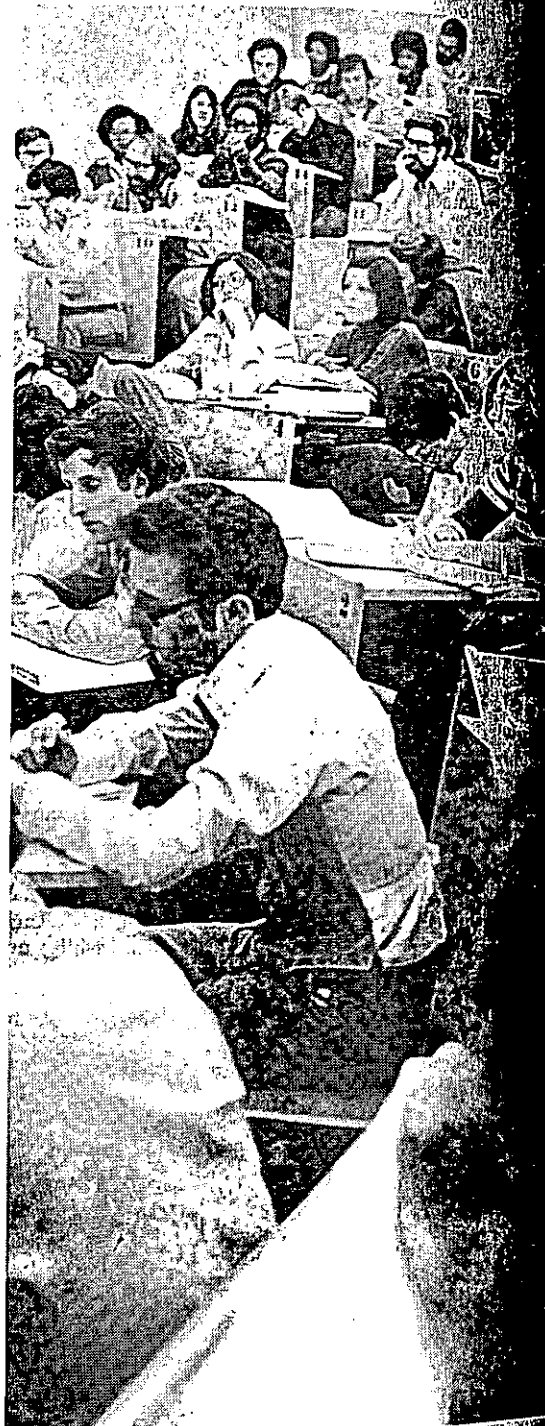
Up to one-half of this requirement may have been completed in another approved school of social work. The transfer student must be in good standing in the school from which he transfers, must meet all other requirements of this School and earn a minimum of forty-five credits.

During the 1976-1977 academic year holders of the Bachelor of Social Work degree who are admitted to advanced standing in the program leading to the Master of Social Work degree must complete a minimum of forty-five credits at the graduate level, including twenty-four credits of field work, four credits in the research seminar or six credits in a group project or nine credits of individual thesis, and a minimum of twelve to seventeen credits in other courses, depending on the sequence selected.

To be awarded a Master of Social-Work degree, the student must achieve an overall grade point average of 3.0. A final oral examination is required of each student with C or lower grades which are not balanced with A grades. An oral examination may be required of any student at the discretion of the faculty.

Application for the degree must be filed no later than the last day of the registration period for the quarter in which the student expects to complete the requirements for the degree. The candidate must be recommended for the degree by the faculty. The candidate is requested to attend the commencement at which the Master of Social Work degree is conferred.

All requirements for the Master of Social Work degree must be fulfilled within nine years from the time of admission to the program of study.



ACADEMIC PROCEDURES

For complete information regarding academic rules and regulations of the University, students should consult the General Information section of this bulletin, beginning on page 5. The following additions and amendments pertain to the School of Social Work.

Students in the School of Social Work are responsible for informing themselves of all rules, regulations, and requirements, complying with all official procedures, and fulfilling all course and degree requirements in proper sequence with satisfactory scholarship. In case of doubt regarding any matter the student should consult the adviser. The primary responsibility rests with the student.

The faculty of the School of Social Work has the responsibility to require a student to withdraw at any time prior to receipt of the degree when, in its judgment, the student fails to do satisfactory work. Such decisions may be based on deficiencies in performance in class or field or in personal fitness for the profession.

Every effort is made to assist the student whose work suffers as a result of conditions beyond his control such as personal illness, serious illness in the immediate family or similar emergencies.

MAXIMUM HOURS

A student devoting full time to study in the School of Social Work should plan a program in consultation with the adviser, limiting it within a framework of required courses and electives in order to maintain a standard of scholarly attainment and academic excellence at the graduate level.

The student who is engaged in part-time work should limit registration in proportion to the amount of outside work after consultation with the student's adviser.

ATTENDANCE

Students are expected to attend all sessions of courses for which they are registered and to notify the instructor or his or her secretary prior to the class session, if possible, when the student may be absent due to illness or similar emergency.

ADMISSION

Each application for admission to the School of Social Work for the program leading to the Bachelor of Social Work degree or the Master of Social Work degree is given careful review in order to select those students best able to fulfill the requirements for professional education in social work. The responsibility for deciding whether a student shall or shall not be admitted rests with the School.

STUDENT AID

Scholarships, fellowships and other forms of financial aid are available on a limited basis for those students who cannot undertake full-time study without some financial assistance. The School expects the student to utilize his own resources as much as possible to cover the cost of his professional education. Financial aid through School resources should be considered as supplementary.

Applications for student aid are evaluated by the University Office of Scholarships and Financial Aids based on financial need as reflected in the information provided by the student and/or his family on the appropriate forms. All requests for applications should be sent to the Office of Scholarships and Financial Aids, Wayne State University.

When financial aid is necessary, the School of Social Work will cooperate with the University Office of Scholarships and Financial Aids to develop the best possible student aid plan from the various scholarships, stipends, grants, or loans available.¹ Such financial assistance will not be assigned or awarded until the student has confirmed his intention to enroll after being notified of admission.

¹ For additional information see page 37.



COURSES OF INSTRUCTION¹

(SW)

0101. Introduction to Social Work. Cr. 2-4.

Introduction to the fields and methods of social work.

0201. Development of Social Welfare in the United States. Cr. 4.

Prereq: sophomore standing. History and development; comparison with welfare programs in other industrialized nations.

0301. Social Work Practice Method I. Cr. 2.

Prereq: junior standing; coreq: SW 0489. First of six courses designed to provide foundation of knowledge and skills for first level of professional social work practice; social work values, principles of observation, interpersonal relationships and communications.

0302. Social Work Practice Method II. Cr. 2.

Prereq: SW 0301; coreq: SW 0489. Continuation of six-course sequence begun in Social Work 0301. Worker-client interactions as influenced by environmental systems.

0303. Social Work Practice Method III. Cr. 2.

Prereq: SW 0302; coreq: SW 0489. Continuation of six-course sequence begun in Social Work 0301. Assessment in the problem-solving process.

0311. Human Development and Dysfunction I. Cr. 2.

Coreq: SW 0489. Open only to B.S.W. students. First of two courses on normal personality development, the socialization process and various psychopathological behavior. Life cycle in context of interaction of the individual in the environment.

0312. Human Development and Dysfunction II. Cr. 2.

Prereq: SW 0311; coreq: SW 0489. Open only to B.S.W. students. Continuation of Social Work 0311.

0332. Social Welfare in the United States: Basic Concepts. Cr. 2.

Open only to B.S.W. students. Development of social welfare in the United States.

0333. Social Welfare in the United States: Current Programs. Cr. 2.

Prereq: SW 0332. Open only to B.S.W. students. Description and analysis of major social welfare programs in the United States.

0340. Research Methods for Social Workers. Cr. 2.

Prereq: course in elementary statistics. Open only to B.S.W. students. Identification of problems within a social work frame of reference and their reformulation into researchable questions.

0401. Social Work Practice Method IV. Cr. 2.

Prereq: SW 0303; coreq: SW 0489. Continuation of six-course sequence begun in Social Work 0301. Holistic approach to problem-solving in social work practice.

0402. Social Work Practice Method V. Cr. 2.

Prereq: SW 0401; coreq: SW 0489. Continuation of six-course sequence begun in Social Work 0301. Range of interventions related to individuals, families, groups and organizations.

0403. Social Work Practice Method VI. Cr. 2.

Prereq: SW 0402; coreq: SW 0489. Continuation of six-course sequence begun in Social Work 0301. Range of interventions related to individuals, families, groups and organizations and evaluation as part of the problem-solving process.

0411. Social Functioning and the Effect of Stress. Cr. 2.

Prereq: SW 0312; coreq: SW 0401. Problems faced by individuals and families as a result of internal and external stressors found in normal development, disease, physical handicaps, situational problems, economics, cultural and occupational problems.

0433. The Social Work Profession. Cr. 2.

Prereq: SW 0333. Open only to B.S.W. students. Description and analysis of the role and responsibilities of the social worker in professional practice.

0440. Seminar in Research for Social Workers. Cr. 2.

Prereq: SW 0340. Utilization of scientific knowledge for the improvement of social work practice.

0489. Field Practice in Social Work. Cr. 1-12 (Max. 35).

Minimum of 27 credits must be taken over not less than 12 quarters. The ratio of clock hours to credits is 27:1. Coreq: SW 0301. Course in social work methods. Open only to junior and senior B.S.W. students. Practicum of B.S.W. professional competence integrated with courses in: social work methods, human behavior in the social environment, social welfare organization and research.

0490. Directed Study. Cr. 1-6 (Max. 6).

Prereq: consent of adviser and Dean. Individual direction in reading and research on selected topics.

0499. Special Topics in Social Work. Cr. 2-4.

Topics of current interest to be announced in *Schedule of Classes*.

0601. Child Welfare. Cr. 2.

Open to students with senior college standing and above. Historical, social and legislative aspects of child care. Private and supported programs. Types of problems, philosophies of treatment, forms of care.

0604. Social Welfare Policy — Services for the Aged. Cr. 2-4.

Open to students with senior college standing and above. Identification, description and analysis of problems, programs and issues related to the needs of the aged in our society.

0605. Social Work in School Settings. Cr. 2.

Open to students with senior college standing and above. Requirement for school social work approval in Michigan, and for all social work students in field work in a school setting. Orientation to social work in school settings. Development, organization and administration of school social work services; procedures in conducting and delivering social work services with school personnel.

0606. Social Work and the Latino Community. Cr. 2.

Coreq: SW 0489 or 0889. Latino community in the midwest. Theoretical perspective with emphasis on the area of social service delivery. Detailed analyses in the areas of housing, education, health services and employment.

0608. Brief Service and Crisis Intervention. Cr. 1-2.

Prereq: senior standing and consent of instructor. Short-term intervention relevant to the current social scene. Theoretical underpinnings for planned brief intervention based on recent research including crisis theory formulation.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

0609. Social Welfare Policy — Juvenile Justice. Cr. 2.

Prereq: junior standing. Study and analysis of social welfare organization and policy within the juvenile justice system. Emphasis on delivery of services, such as: probation, parole, diversion programs. Relationship between legal concepts of juvenile court and principles of social work.

0610. Seminar in Social Work Practice for Agency Personnel. Cr. 1-4 (Max. 10).

For those currently employed in a social agency. Theories of social work practice related to current practice in specific areas.

0611. Social Work in the World of Work. Cr. 2.

A survey of work-related behavior and social work in work settings, labor unions and agencies serving workers.

0615. A Survey of Community Social Work Practice. Cr. 2.

Coreq: SW 0489 or 0889. Not open to students in Community Social Work. Community social work as practiced in voluntary associations, service agencies and planning organizations.

0620. Complex Organizations. Cr. 2.

Prereq: senior college standing. Nature, structure and processes of formal organizations.

0666. (NUR 0666) Suicidology and Suicide Prevention. Cr. 2 or 4.

Prereq: baccalaureate degree, senior standing or consent of instructor. A theoretical exploration of suicidology with specific reference to behavioral manifestations of suicidal crises, patterns of intervention with individuals experiencing suicidal crises, and analysis of existing research.

0699. Special Topics in Social Work. Cr. 2-4.

Prereq: senior college standing. Topics of current interest to be announced in *Schedule of Classes*.

0705. School Social Work and the Law. Cr. 2.

Prereq: consent of instructor. Seminar to explore emerging legal considerations incident to the delivery of social work and other special education services in Michigan schools today.

0706. Social Welfare Policy — Welfare Programs in Other Nations. Cr. 2.

Social welfare programs in selected foreign countries; typical problems, philosophy and values guiding policy; modes of organization; comparisons with the United States.

0707. (ECO 0584) Economics of Social Welfare. Cr. 4.

Prereq: ECO 0102 or consent of instructor. Major economic hazards that face the individual in modern society: aging, unemployment, and physical or mental disability. Alternative and complementary public and private remedies and economic implications of security programs. Relevant foreign experience.

0713. (ECO 0541) Labor Problems I. Cr. 4.

Prereq: ECO 0101. Our changing labor force; development, structure and philosophy of United States unionism; collective bargaining; bargaining power and the role of the strike; substantive union-management issues; public labor policies.

0714. (ECO 0641) Labor Problems II. Cr. 4.

Prereq: ECO 0102. Continuation of Social Work 0713. Labor supply; causes and remedies for unemployment; labor mobility and the operation of labor markets; productivity and real wages; wage determination; human capital, income distribution, and economic development; poverty and its causes; economic impact of collective bargaining.

0715. Social Welfare Policy — Health Services. Cr. 2.

Current issues of organization and policy in the field of health.

0716. Social Welfare Policy — Services for Mental Health. Cr. 2.

Current issues of organization and policy in the field of mental health.

0718. (SOC 0580) Population and Modern Society. Cr. 4.

Prereq: ECO 0101, or SOC 0201, or SS 0191-0192, or consent of instructor. Economic and social significance of world population trends, changing composition of population, relation of population to labor supply, standard of living and markets, national policies affecting population.

0719. Social Welfare Policy — Income Maintenance Programs. Cr. 2.

Analysis of income maintenance programs in the United States—social insurance, public assistance, children's allowance, guaranteed annual income plans.

0720. Social Welfare Policy — Housing and Urban Development. Cr. 2.

Housing and associated problems of the central city; relation to social class and race; issues and dilemmas; social work involvement.

0722. Social Welfare Organization in the United States. Cr. 2.

Survey of major fields of social welfare, historical perspectives, goals in meeting human needs, program deficits, policy issues.

0726. (TBF 7471) Vocational Rehabilitation of the Handicapped. Cr. 4.

Prereq: consent of instructor. Organization, legislative provisions and rehabilitation procedures for physically and mentally handicapped adults. Consideration of causes, incidence and nature of various handicaps; diagnosis, treatment, education, training; placement and follow-up.

0727. (TBF 5743) Mental Hygiene of Childhood and Youth I: Understanding Behavior. Cr. 2.

Prereq: introductory course in psychology or child development or consent of adviser. Aspects of understanding children which are directly relevant to the task of handling their behavior. Criteria for assessment of normality and health versus degree of disturbance, as far as can be read from behavior observation.

0728. (TBF 5744) Mental Hygiene of Childhood and Youth II: Management of Behavior. Cr. 2.

Prereq: introductory course in psychology or child development or consent of adviser. Practical approaches and implications for handling child behavior and managing groups. Techniques of behavioral intervention: dynamics and issues of punishment; selection of appropriate action techniques for individuals and groups.

0729. (TBF 7737) Seminar on Emotional Disturbances: Treatment and Behavioral Control. Cr. 3.

Prereq: consent of instructor. Utilization and understanding of group processes in development of personality; emphasis on processes relevant to emotional adjustment and the management of individuals requiring therapy.

0730. (TBF 5747) Mental Hygiene of Childhood and Youth III: Dynamics of Group Life. Cr. 2.

Prereq: introductory course in psychology or child development, or consent of adviser. The group as an organism; group structure and group atmosphere; group roles and leadership types; function of organization, routine, and discipline. The individual in the group; case-relevant behavior. Composition of groups; psychology

of gang formation; problems of group disintegration; problem of contagion. Use of the group medium for recreational, educational and clinical goals; techniques of group leadership.

0731. The Behavioral Base of Social Functioning. Cr. 2.

Coreq: SW 0889. The human individual, the concept of personality, patterns of human maladjustment and social dysfunctioning.

0732. The Environmental Base of Social Functioning. Cr. 2.

Coreq: SW 0889. The environment of man; society, class, caste, status, role, major cultural institutions and social arrangements and their impact on human maladjustment and social dysfunctioning.

0733. The Concept of Social Functioning. Cr. 2.

Prereq: SW 0742 or 0762 or 0772 or 0782 or consent of instructor; coreq: SW 0889. Social functioning; "match" between the individual's coping capacities and his environment; use of the systems approach for assessing social functioning.

0734. Application of Behavioral Modification Theory to Interpersonal Helping. Cr. 2.

Prereq. or coreq: SW 0889. The general base of behavior modification theory with emphasis on the specific adaptability of the theory to social work practice.

0735. Social Work and Ethnicity. Cr. 2-4.

Prereq: consent of instructor. Ethnicity as it relates to psychosocial and interpersonal adjustment within and between ethnic clusters. The ability of societal institutions to accommodate ethnic grouping and their needs.

0736. The Adolescent Process: Issues for Profession of Social Work. Cr. 2.

Prereq: SW 0889 or consent of instructor. Examination of the theory of adolescent development as a base for discussion of problems in public policy, law and social work intervention.

0740. Social Work Practice I. Cr. 3.

Coreq: SW 0889. The first of three courses on the problem-focused social work practice model. Basic social work principles and values, on organizational and systems analysis, and on observation and communication skills.

0741. Social Work Practice II. Cr. 3.

Prereq: SW 0740; coreq: SW 0889. The second of three courses on the problem-focused social work practice model. Problem solving process, utilization of small group process, group formation criteria, and a presentation of a variety of intervention procedures.

0742. Social Work Practice III. Cr. 3.

Prereq: SW 0741; coreq: SW 0889. The third of three courses on the problem-focused social work practice model. Variety of social work intervention procedures.

0743. The Social Worker as a Change Agent. Cr. 2-4.

Prereq: consent of instructor. Social work interventions within a problem-focused frame of reference. Guidelines for selecting effective intervention strategies, including individual, organizational, or community-directed change processes.

0745. (SOC 0400) Methods of Empirical Social Research. Cr. 4.

Prereq: SOC 0201 or SS 0191-0192. Empirical methods of conducting social research; questionnaire construction; interviewing; sampling; experimental controls; interpretation of data.

0746. (SOC 0602) Social Statistics. Cr. 4.

Prereq: STA 0102 or equiv. Principles and problems involved in

collecting, analyzing, and interpreting statistical data. Significant differences in sociology, applying correlation and measurement.

0748. Research Methods in Social Work. Cr. 2.

Prereq: a four hour course in elementary statistics. Open to full-time students in the School of Social Work or authorization of the Dean. Problem formulation and design within a social work frame of reference.

0749. Client Advocacy in Interpersonal Helping. Cr. 2.

Coreq: SW 0889 or consent of instructor. An analysis of the principle of client advocacy with the individual client of the family in the context of social work.

0754. Family Theory. Cr. 2-3.

Open only to full-time students in the School of Social Work. Family theory drawn from all the social and behavioral sciences as a background for learning family diagnosis and treatment in social work.

0755. Afro-American History and Culture. Cr. 2-4.

A perspective of the history and culture of the black man in Africa and his subsequent introduction into American culture and history.

0756. Third World Perspectives in Social Welfare. Cr. 2.

Development and impact of national social welfare programs upon minorities with emphasis placed upon state origins, means of control, incidence of conflict, and current efforts for change.

0757. Health Problems. Cr. 2.

A problem approach to health needs and difficulties of individuals, families and communities.

0758. The Social Worker and the Inner City. Cr. 2.

Coreq: SW 0889 or consent of instructor. An analysis of disreputable patterns of social stratification in the inner city. Particular emphases placed on the changing roles of social workers and others who work among the disenfranchised.

0759. Behavior Management in Settings for Children. Cr. 2.

Coreq: SW 0889 or consent of instructor. An analysis of relevant theories for behavior management of children in life settings.

0760. Social Casework I. Cr. 2.

Coreq: SW 0889. Orientation to the value system, concepts and principles of social casework. Beginning understanding of the casework relationship and principles of interviewing; understanding the person in his situation, psychosocial study and diagnostic aspects of the casework process for purposes of formulating treatment goals and procedures.

0761. Social Casework II. Cr. 2.

Prereq: SW 0760; coreq: SW 0889. Practice theories of social casework, building on continued learning of diagnostic aspects; family-focused approach.

0762. Social Casework III. Cr. 2.

Prereq: SW 0761; coreq: SW 0889. Differential diagnosis and treatment with introduction to the range of treatment modalities in social casework relationship. Handling of the transfer and termination processes.

0763. Social Work Methods with Children I. Cr. 2.

Prereq: SW 0742 or 0762 or 0772 or 0782. Differential diagnosis of children and parents as related to problems of parent-child

relationships, childhood emotional disorders, and difficulties in social functioning of children and adolescents.

0764. Social Work Methods with Children II. Cr. 2.

Prereq: S W 0742 or 0762 or 0772 or 0782. Treatment of children in foster home and institutional placement. Processes involved in intake, preparation for placement, foster home and adoption studies, supervision of foster homes. Criteria for placement and protective services.

0770. Social Group Work I. Cr. 2-3.

Coreq: S W 0889. Concepts, principles and overview of social work helping in the small group. Lecture, discussion and laboratory sessions on the professional tasks in the early phases of group service.

0771. Social Group Work II. Cr. 2-3.

Prereq: S W 0770; coreq: S W 0889. Individual and group assessment, differential service design, and worker activity as a function of social problem and setting.

0772. Social Group Work III. Cr. 2-3.

Prereq: S W 0771; coreq: S W 0889. Professional tasks in the later phases of group service; evaluation and termination.

0773. Structured Interactions in Social Work Practice. Cr. 2.

Prereq: S W 0770; coreq: S W 0771 and 0889. Experiences to provide knowledge and skill in social work practice in developing structured interactions geared to facilitate behavioral change, growth and development.

0780. Community Social Work I. Cr. 3.

Coreq: S W 0889. Open only to full-time students in the community social work sequence or to others by authorization of the Dean. Beginning with activities and discussions dealing with participant-observation experiences as an introduction to community processes, this course provides the didactic emphasis of a "planned community change" theme. The first element focuses on the goals and objectives of planned community change from a philosophical and historical as well as a social science and social work perspective.

0781. Community Social Work II. Cr. 3.

Prereq: S W 0780; coreq: S W 0889. Continuation of Social Work 0780. Examination of community organization processes from the point of view of the dynamics of establishing relationship with community leaders and participants, formulation and operation of task-oriented groups, problems in group role dysfunction, and group goals.

0782. Community Social Work III. Cr. 3.

Prereq: S W 0781; coreq: 0889. Continuation of Social Work 0781. The relationship of group action to community change; the neighborhood as a group — its variation in the inner city and other settings. An examination of habitational units cross-culturally; relationship of political and social forces to development of neighborhood decision-making processes, particularly in impacted areas; role of social worker in assisting these processes. This course serves as the integration point of all first-year professional courses in the community social work sequence.

0783. Use of the Media in Social Work Practice. Cr. 2.

Open to all students in the School of Social Work or others by consent of instructor. The functions of social workers in education, treating, organizing and training as it relates to their clients and their constituents, and the utilization of the various media to enhance the worker's knowledge and skill in the performance of the services needed.

0784. Art and Science of Social Action, Cr. 2-4.

Specific cases of social change through action. Analyzing, assisting, and occasionally simulating cases of social struggle. Emphasis on strengthening the function of social workers.

0785. Socio-Cultural Dynamics in Community Intervention. Cr. 2 or 4.

Open only to community social work students admitted for full-time graduate work or to others by authorization of the Dean. An examination of urban social dynamics from the point of view of the interviewing practitioner. Subjects include the treatment of community institutions, deprived populations, culture and stratification as these are operationalized for purposes of interaction.

0786. Community Behavior and Organizational Behavior. Cr. 2-4.

Open only to community social work students admitted for full-time graduate work or to others by authorization of the Dean. An intensive study of the composition and actions of metropolitan communities and of the major organizations which constitute them, with stress on opportunities for, and resistance to the application of social work methods.

0787. Political Processes and Community Social Work Practice. Cr. 2-4.

Open only to full-time students in the community social work sequence or to others by authorization of the Dean. General characteristics of the American political system at national, state and local government levels insofar as political themes and variations affect the design and implementation of community social work practice.

0788. Systems and Organization in Crime and Delinquency. Cr. 2.

Open only to community social work students admitted for full-time graduate work or to others by authorization of the Dean. A survey of the extent of the problem of crime and delinquency, the court structure, and the organizational systems in adult and juvenile correction and rehabilitative services. Theories and recent legal opinions reviewed. Means of policy change developed, as well as possible "community systems" that will have impact on alleviating present problems.

0789. Community Control of Public Institutions. Cr. 2.

Problems and opportunities of black communities, other communities and service workers generally in developing community control of schools, agencies, hospitals, police and other services. Study of generic approaches to popular control of human resources.

0790. Directed Study. Cr. 2-6 (Max. 6).

Prereq: consent of adviser and authorization of the Dean. Individual direction in reading and research on selected topics.

0800. An Overview of Psychopathology. Cr. 2.

Coreq: S W 0889. Placing the concept of psychopathology within an adjustment continuum; examining normal growth and development; examining the symptoms, dynamics and etiology of psychoneurosis, psychosis and personality disorders.

0801. Psychopathology I. Cr. 2.

Prereq: S W 0742 or 0762 or 0772 or 0782; coreq: S W 0889. Detailed presentation of the descriptive, dynamic, and economic aspects of neurotic conflicts and of the more important psychoneuroses, personality disorders and psychoses from the psychoanalytic point of view.

0802. Psychopathology II. Cr. 2.

Prereq: S W 0742 or 0762 or 0772 or 0782; coreq: S W 0889. Continuation of Social Work 0801.

0803. Psychopathology III. Cr. 2.

Prereq: S W 0742 or 0762 or 0772 or 0782; coreq: S W 0889. Continuation of Social Work 0802.

0804. Psychopathology in Children. Cr. 2.

Prereq: S W 0742 or 0762 or 0772 or 0782; coreq: S W 0889. Theory of neuroses and psychoses and personality and behavior deviation in children from the psychoanalytic point of view.

0805. Social Work and the Black Community: An Historical Perspective. Cr. 2.

Increased understanding of the wide variety of moods and trends within the black community with emphasis on the development of black education and religion. Improved social work intervention into and in behalf of the life situations of black individuals and social groupings through knowledge of their present status.

0806. Social Work and the Black Community: Advanced Workshop. Cr. 2.

Prereq: consent of instructor. A critical examination of the significant issues facing the black community and the role of social work in contributing to the resolutions of the problems. Students develop in-depth understanding of at least one aspect or factor impinging on the quality of black life.

0807. Advanced Workshop on Health Problems in Social Work Practice. Cr. 2.

Prereq: consent of instructor. Continuation of a problem approach to assessing health problems of individuals and families with particular attention to preventive aspects of treatment and rehabilitation.

0808. Health Care Organization. Cr. 4-10 (8 required).

Prereq: S W 0742 or 0762 or 0772 or 0782; consent of instructor; coreq: S W 0889. American health care system; related social policy and political processes pertinent to organization, delivery, financing, and evaluation of services; in-depth analysis of one sub-system of health services.

0809. Drug Addiction in American Society. Cr. 2.

Coreq: S W 0889. Survey of the theoretical and methodological aspects of rehabilitation as applied to drug addiction. The etiology of drug addiction; effective social work service to the addict; major approaches to treatment.

0810. Social Casework IV. Cr. 2.

Prereq: S W 0762; coreq: S W 0889. Differential diagnosis and treatment in social casework with the family and its sub-systems such as the spouse (marriage counseling), parent-child and sibling sub-systems. Aging and intergenerational problems.

0811. Social Casework V. Cr. 2.

Prereq: S W 0810; coreq: S W 0889. Seminar: content of Social Work 0760, 0761, 0762, and 0810 applied to student's own case material.

0815. Developments in School Social Work Services. Cr. 2.

Open only to practicing school social workers. Prereq: consent of instructor. Specific analysis of current procedures and developments in school social work services; research materials and findings; experimental and recommended methods; evaluation.

0816. Seminar in School Social Work. Cr. 2.

Open only to first year school social work practitioners. Prereq: consent of instructor. Required for school social work approval in Michigan. Problem solving approach to assessing needs and establishing priorities in social work practice in school settings.

0819. Policy Trends and Issues — Social Work and the Cr. 2.

Role of the social work profession in relation to emerging trends in the field of education; innovative designs in social work services for the enhancement of the educational process; policy realities and issues affecting the social and emotional growth of children and youth.

0822. Social Group Work IV. Cr. 2.

Prereq: S W 0772; coreq: S W 0889. Separate sections for students majoring or minoring in group work and for students entering into the group work sequence in the second year. A variety of concepts of group work practice: the group as a helping system, group development and worker intervention. Majors take this seminar format a variety of approaches to conceptualizing group work practice; models and model building.

0823. Social Group Work V. Cr. 2.

Prereq: S W 0882; coreq: S W 0889. A series of five-week courses developed in collaboration with students. Each student takes two courses focused on practice problems of working with different age levels (children, adolescents) in the first half-quarter and on techniques of working in groups (behavior modification, programming) in the second half-quarter.

0824. Social Group Work VI. Cr. 2.

Prereq: S W 0823; coreq: S W 0889. A series of final seminars with content based on the interests of students and faculty. Illustrations are models and model building, current practice trends, marital counseling groups, use of groups in various fields of service. Integration of the content of the two-year program in group work method and practice.

0825. Social Group Work Treatment. Cr. 2.

Prereq: M.S.W. or consent of instructor. Current practice with group desirable. Theoretical base and techniques in the use of the group as a social work helping method.

0827. Structural Aspects of Administration of Social Agencies. Cr. 2.

Prereq: S W 0831 or M.S.W. degree or consent of Dean; consent of instructor. Examination of the social agency as a social service system.

0828. Behavioral Aspects of the Administration of Social Agencies. Cr. 2.

Prereq: S W 0831 or M.S.W. degree or consent of Dean; consent of instructor. Behavioral dynamics of individuals and groups that underlie internal organizational life of the social agency.

0829. Planning and Control Systems in Administration of Social Agencies. Cr. 2.

Prereq: S W 0831 or M.S.W. degree or consent of Dean; consent of instructor. Systems, techniques and procedures for social agency planning, coordination and control.

0830. Seminar in International Community Development. Cr. 2.

Community development theory and practice in settings outside the United States. Identification of social work knowledge, practice, skills and problems in foreign arenas and the applicable methods of intervention in problem solving.

0831. Administration of Social Agencies I. Cr. 2.

Prereq: S W 0742 or 0762 or 0772 or 0782 or consent of Dean; consent of instructor. Components of the administrative structure and processes in social agencies.

0832. Administration of Social Agencies II. Cr. 2.

Prereq: consent of instructor. Seminar in administration of social agencies.

0833. Models of Planned Change and Administration for Social Workers. Cr. 2-4 (4 required).

Prereq: S W 0742 or 0762 or 0772 or 0782; consent of instructor; coreq: S W 0889. No credit after S W 0733 or 0831. An integrated approach to concepts of planned change; organizational development and administration, focusing on social service delivery in substance abuse settings.

0834. Advanced Seminar: Behavioral Theory and Interpersonal Helping. Cr. 2.

Prereq: S W 0734 or consent of instructor; prereq. or coreq: S W 0889. Behavioral modification techniques such as systematic desensitization, aversion therapy, social learning and imitation, verbal conditioning, and self-control. Client populations and settings which have been the "successful" targets of behavioral modification.

0835. Ego Psychology for Social Workers. Cr. 2.

Prereq: S W 0731 or equiv; M.S.W. degree or completion of forty-five credits toward the degree. Recent contributions to ego psychology theory examined in relation to social work practice.

0837. Community Social Work Seminar. Cr. 2-4.

Prereq: consent of instructor.

0841. Community Social Work IV. Cr. 3.

Prereq: S W 0782; coreq: S W 0889. Planned community change processes in terms of the social worker's use of legal and social action tools. The legal framework is cited as the basis for practice, particularly as regards institutional change strategies. Socio-legal problem-solving techniques at the local, state and national levels.

0842. Community Social Work V. Cr. 3.

Prereq: S W 0841; coreq: S W 0889. The impact of planned community change in terms of the relationship between that change and individual human behavior; means for evaluating the impact of practice, utilizing field experiences as the major illustrative device.

0843. Community Social Work VI. Cr. 3.

Prereq: S W 0842; coreq: S W 0889. A seminar devoted to reviewing the conceptual and practice material of the preceding courses in community social work methods services in terms of an examination of gaps in current practice, knowledge and skills; critique of community social work practice.

0844. Behavioral Modification and Casework. Cr. 2.

Prereq: S W 0811; coreq: S W 0889. Applicability of behavior modification theory to the practice of social casework. The general base of behavior modification theory; adaptability of this approach for casework practitioners.

0845. Social Casework Methods with Children and Their Families. Cr. 2.

Prereq: S W 0811; coreq: S W 0889. Social casework methods and techniques with pre-school, latency aged and adolescent children and their families. Diagnostic and communication skills are explored together with the use of play and family life education as means of helping children and their parents.

0847. Social Casework Methods in Clinical Mental Health Settings. Cr. 2.

Prereq: S W 0811; coreq: S W 0889. Social work methods with clients in mental health settings. Direct intervention techniques and use of support systems.

0848. Social Casework Methods in Family Treatment. Cr. 2.

Prereq: S W 0811; coreq: S W 0889. Family treatment in a variety of settings. Practice with utilization of a variety of models with consideration of the theoretical underpinnings. Differentials of family-focused approach, family diagnosis and treatment and family unit treatment.

0849. Social Casework Methods in Marriage Counseling. Cr. 2.

Prereq: S W 0811; coreq: S W 0889. Application of social casework concepts, principles and methods in marriage counseling. Review of practice theories and their application in the area of marital problem solving.

0850. Social Casework Methods in Health Settings. Cr. 2.

Prereq: S W 0811; coreq: S W 0889. The function of the social caseworker in health and rehabilitation settings; emphasis on the social caseworker as a member of the interdisciplinary team; impact of casework on systems involved in the receipt and delivery of health care services.

0851. Short-Term Treatment in Social Casework. Cr. 2.

Prereq: S W 0811; coreq: S W 0889. Current research and application of crisis theory which indicates the effectiveness and durability of time-limited treatment, its effect on maximizing the worker-client relationship and the establishment of task-oriented treatment goals in various settings and with different target groups.

0852. Physical Aspects of Social Planning. Cr. 2 or 4.

Open only to full-time students in the community social work sequence or others by authorization of the Dean. The relationship of physical and social planning. Particular stress given to examining physical planning techniques in terms of their usefulness for carrying out social planning tasks.

0853. Economics of Social Welfare Planning. Cr. 2 or 4.

Open only to full-time students in the community social work sequence or others by authorization of the Dean. A review of the relationship between the development of social welfare programs and the economy at both national and local levels, economic aspects and impact of planned community change.

0855. Institutional Racism: Implications for Social Work. Cr. 2.

Racism and its impact on social work, social workers and the development of social welfare programs. History of modern racism, its character, development and effects upon social work practice.

0856. Social Psychological Dynamics in Community Intervention. Cr. 2 or 4.

Open only to full-time students in the community social work sequence or others by authorization of the Dean. An examination of the conceptual basis for the interaction between individuals and their social environment. Stress on the relationship between behavior from a symbolic interactionist perspective and social work practice.

0857. Social Planning Design I. Cr. 2.

Credit only on satisfactory completion of Social Work 0858. Open only to full-time students in the community social work sequence or others by authorization of the Dean. A two-quarter course emphasizing the technology of social planning, utilizing actual problems encountered by social welfare organizations. The class functions as a consulting group and issues consultation reports based on its findings.

0858. Social Planning Design II. Cr. 2.

Prereq: S W 0857. Continuation of Social Work 0857, culminating in the writing and communicating of a report to a client organization.

0859. Social Planning Implementation. Cr. 2 or 4.

Open only to full-time students in the community social work sequence or others by authorization of the Dean. Identification and utilization of educational, social action, legal, political, economic and feedback tools in implementing plans for social problem solution at local, state and national levels.

0862. Methods of Field Instruction. Cr. 2.

Prereq: M.S.W., consent of instructor. Open only to current field instructors (for credit or audit). Basic principles of field instruction. Role and function of the field instructor as an educator. Coordination of field and classroom teaching. The evaluation process as a learning experience.

0863. Supervision in Social Work Seminar. Cr. 2.

Prereq: M.S.W. and supervisory practice. Principles and methods involved in providing progression in learning for beginning practitioners; evaluation, consultation, and administrative aspects of supervision. Discussion of conferences and selected readings.

0864. Methods in Social Work Administration I. Cr. 2.

Prereq: S W 0620 or equiv.; coreq: S W 0889. Open only to full-time students in the Social Work Administration program in the School of Social Work. Assessment of the internal and external variables which affect social service organization structure.

0865. Methods of Social Work Administration II. Cr. 2.

Prereq: S W 0864; coreq: S W 0889. Assessment of individual and group behavior of personnel in social service organizations.

0866. Methods in Social Work Administration III. Cr. 2.

Prereq: S W 0865; coreq: S W 0867 and 0889. Strategies and techniques for organizational goal attainment in social service organizations.

0867. Social Work Administration Seminar. Cr. 2.

Prereq: S W 0865; coreq: S W 0866 and 0889. Seminar group functions as a management consulting team with the purpose of analyzing the administrative structure and processes of a cooperating social agency.

0874. Financial Data Reports in Social Service Organizations. Cr. 2.

Prereq: consent of instructor. Survey and use of financial data reports as they relate to the administration of social service organizations.

0875. Leadership and Supervision in Social Service Organizations. Cr. 2.

Prereq: consent of instructor. Policies, procedures and practices in leadership and supervision in social service organizations.

0876. Personnel Administration in Social Service Organizations. Cr. 2.

Prereq: consent of instructor. Policies, procedures and practices in employment relations as they apply to the administration of social service organizations.

0878. Social Welfare Policy — Rights of Children and Youth. Cr. 2.

Coreq: S W 0889. In-depth study of a current issue in the definition and protection of the rights and needs of children and youth.

0879. Social Welfare Organization and Policy Seminar. Cr. 2.

Limited to second year full-time students in the School of Social Work. Issues in social work as a profession, including professional status, areas of competence, professional organizations, community sanction, autonomy.

0881. Seminar on Social Work and the Aging. Cr. 2.

No credit after S W 0604. Psychological, sociological and factors in the adaptation of the aging related to medical sources and the establishment of social work programs.

0882. Learning Problems: A Social Work Orientation. Cr. 2.

Coreq: S W 0889 or M.S.W. Work with the educational to identify and understand the nature of the impact of relationship and use of social work services in remediation.

0889. Field Work for Social Workers. Cr. 3-16 (Max. 6).

Coreq: a course in the social work methods sequence (S and U grades only). Registration limited to the School and to the number of placements available. Open to graduate students who have been admitted to a School of Social Work. Applications must be made of registration to insure placement. The ratio of credits is 27 to 1. A minimum of 48 credits or 1296 hours is required for the degree of Master of Social Work. must be taken in not less than six quarters, the usual placement in two agencies for three quarters each.

0895. Research Seminar. Cr. 1-4 (4 required).

Open only to full-time students in the School of Social Work others by authorization of the Dean. Methodological critique of selected social work research studies to search utilization skills.

0896. Group Project Research and Direction. (0,1-6). Cr. 1-6 (6 required).

Open only to full-time students in the School of Social Work others by authorization of the Dean.

0898. Seminar in Advanced Social Case Work. Cr. 2-4.

Prereq: M.S.W. and experience in social case work and instructor. Diagnostic and treatment processes. Case presentation by students. Transference phenomena and role in broader community and socio-cultural factors; psychotherapeutic aspects. Family focused and other treatment modalities.

0899. Master's Thesis Research and Direction. (0,3-9). Cr. 3-9 (9 required).

Open only to full-time students in the School of Social Work others by authorization of the Dean.

FACULTY

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Joseph P. Hourihan, Associate Dean and Professor
Melyvn C. Raider, Assistant to the Dean and
Associate Professor

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Vaughan

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Dean 114 Cohn; telephone: 577-4400
Associate Dean 108 Cohn; telephone: 577-4404
General Information 10 Cohn; telephone: 577-4409
Admissions, Financial Aid and
Student Services 10 Cohn; telephone: 577-4409
Recruitment of Minority
Group Students 10.4 Cohn; telephone: 577-4425
Student Organization 311 Cohn; telephone: 577-4435
Association of Black Social
Work Students. . . Room 212, 5740 Cass; telephone: 577-4458

Trabajadores de la Raza

Estudiantil (T.R.E.) 10.4 Cohn; telephone: 577-4409
Room 100.2, 5740 Cass; telephone: 577-4464

Mailing address for all offices:

School of Social Work, Wayne State University, Detroit,
Michigan 48202

FIELD INSTRUCTORS

The following agencies and persons have worked with mem-
bers of the faculty in field instruction during the fall quarter
of 1976-1977:

Adult Service Centers, Inc.

MARY ATWELL, JUDITH CSASZAR

Adult Service Centers, Inc. — Adult Care Services

ROBERT SHAW

Allied Health Services

CORINE SMITH

Alternative House

CATHY HERTZBERG

American Civil Liberties Union

American Indian Services

American Red Cross

BARBARA HUDGENS, DORIS STERRETT

Anti-Defamation League

Area Agency on Aging

Area Services Association

LEON BERGER

Avondale Public Schools

ANNETTE ROSE

Bay Area Guidance Center

GERALD JEFFREYS

Beverly Manor Convalescent Center

MARJORIE MILLER

Big Brothers and Big Sisters, Inc., Macomb Area Office

SHARON GIRE

Black Community Development Project

Brightmoor Community Center

HELEN CHARNEY

Catholic Social Services of Lapeer

FRANK BOMMARITO

Catholic Social Services of Oakland County

SANDY BESWETHERICK, ROBERTA LYNCH

Catholic Social Services of St. Clair County

DENNIS BELINA, JOHN HEIDTKE

Catholic Social Services of Wayne County

DON BAKER, MICHAEL BARKEY, KAREN BORGERDING,
TRACY COX, CHARLES GEIGER, MARGARET MYERS,
MAUREEN SHEA

Center for Black Studies

Center for Forensic Psychiatry

MAUREEN UNDERWOOD

Child and Family Services of Washtenaw County
RUTH ABELL

Children's Aid Family Services of Macomb
SANDRA MANZO, EDWIN WOOD

Children's Aid Society
MATTIE MILLER, BENNIE STOVALL

Children's Aid Society of the County of Essex
ELIZABETH MAZUR

Children's Center of Wayne County
CRAIG JACKSON, THEODORE LEWIS, CAROL MURRAY,
CAROL SALINGER, PAULA SLAGER

Children's Hospital of Michigan
SHARON DUGAN, HAROLD WEISS

Clarenceville Public Schools
BARBARA MANDELL

Clarkston Community Schools
JAMES BUTZINE

Clinton Valley Center
RON BARANSKI, PAUL BLOMGREN, JOSEPH KOSELY,
JUDY WARWICK

Clinton Valley Center, Fairlawn
CHRIS BURKARD

Colegio De La Tierra
JAIME DE LA ISLA

*College of Lifelong Learning, Division of Community
Services, Wayne State University*

*Committee on Urban Economics, Linwood Community
Organization*

Comprehensive Health Services of Detroit
BETTY DANIELS, MYGENE LIPSCOMB

Concerned Providers for Employee Assistance Services

Consumer Affairs Department, City of Detroit
ESTHER SHAPIRO

*C. S. Mott Center for Human Growth and Development,
Wayne State University School of Medicine*
AARON L. RUTLEDGE

*Department of Health, City of Detroit, Bureau of
Substance Abuse*
DENNIS MORDMOE, JAMES SALL

Detroit East Mental Health Center
RICHARD DEIGHTON

Detroit General Hospital
FLORENCE WASHINGTON

Detroit General Hospital — Rape Counseling Center
ALTHEA GRANT

Detroit Maternal and Infant Care Project PRESCAD
DIANNE DOUGHERTY, CHARLES HILL

Detroit Memorial Hospital
JEAN IRELAND

Detroit Memorial Hospital, Alcoholism Unit
CHERYL DAVIDGE

Detroit Orthopaedic Clinic
TERRENCE VAUGHN

Detroit Psychiatric Institute
ROSEMARY HASSE, ANITA PARKER, CHARLOTTE
RUSSELL, GARLAND SANDERS

Detroit Public Schools
HARRIET KIRK, MAVIS MASON, CELESTINE MAY, DORIS
McCLOUD, HELEN POSNER, PEARL ROBERSON, FRED-
DIE SHANNON, MAXINE WALTON, MELVA WILSON

Detroit Urban League
WINSTON LANG

Downriver Community Services
BENJAMIN HELMKE

East Detroit Schools
BETTY BROGAN

Family and Children's Services of Oakland
MARY ENSROTH, GERALD MAYNARD, ANNA
WOODWARD, LITA ZEMMOL

*Family and Neighborhood Service for Wayne County,
West Office*
ALTON SHELLY

*Family Health Service, Wayne State University School
of Medicine*

Family Service of Detroit and Wayne County
SALLY HOLMES, THOMAS MARTIN, EVELYN SMITH

Federation of Girls' Homes
GERALDINE BURGMAN, VELMA COLEMAN,
DENNIE ROBINSON, DIANNE ROBINSON

Franklin-Wright Settlements, Inc.
LENORA DELANEY, CECELIA DUMBRIGUE, ED STEWART

Golightly Educational Center

Grosse Pointe Schools
LYNN ADAMS, OWEN CLINTON

*Harmony Village, Northwest Detroit Non-Profit Housing
Corporation*

Hawthorn Center
MARY-LEE WILLIAMS

Head Center, Inc.
LEON WATKINS

Health Care Institute, Wayne State University School of Medicine

Henry Ford Hospital
LARRY SCHILHANECK

Highland Park Mental Health Center
HENRY MALONE

Holy Redeemer Church — Senior Citizen Program
SR. ANNETTE ZIPPLE

Homes for Black Children

*House of Representatives, Democratic Research Staff,
Lansing, Michigan*
MIKE MADDEN

Howard Home
TOM BAUER, PHYLLIS MANSON

Huron Public Schools
SHIRLEY FINN

International Institute of Metropolitan Detroit, Inc.
MARIA KWITKOWSKY

Jeffries Housing, Detroit Housing Commission

Kercheval-Riverfront Community Organization

Kingswood Hospital
ARTHUR MONTAGNE, ARLA VAN CAMP

LACASTA (Latin American Community Against Substance Abuse)
LOREN HOFFMAN

Lafayette Clinic
LYNN BUCK, ELIZABETH FINE, MARGUERITE FLYNN,
CORINNE GOLDEN, ROBERT WELLS

Lakewood Clinic
JACK SIMONTON

Lamphere Public Schools
RUTH AMBINDER

L'Anse Creuse Public Schools
JAMES McWATT

Livingston Intermediate Schools
KAREN STIEFEL

Lula Belle Stewart Center, Inc.
ETHEL BURGESS

Lutheran Children's Friend Society
JEANNE ARNETT, SALLY BORDEN

Lutheran Social Services of Michigan
DAVID STEELE, JODIE TETTING

Lutheran Social Services of Northwestern Ohio
BERNARD FAGAN

Macomb Child Guidance Clinic
WILBUR DAUGHÉRTY, PRISCILLA PEARCE

Macomb County Health Department
BERNADETTE ADAMS

Methodist Children's Home Society
DAVID ANDERSON, JANET JOHNSON

Michigan Avenue Community Organization

Michigan District Court 45-B Oak Park Probation Department
ROBERT KLOTZ

Michigan Legal Services
GEORGE CORSETTI

Mt. Carmel Mercy Hospital
THELMA SMITH

Neighborhood Service Organization — Community Mental Health
JOHN C. MOSTELLAR

New Detroit, Inc.
NATHANIEL BROOKS, PAUL HUBBARD

New Horizons
ANN BINION

Northeast Guidance Center
JOYCE BARCOME, GARY BERNSTEIN, DOROTHY MON-
GOVEN, MARY MEYER, LOUKIA PELOSOFF, ROBERTA
SAUNDERS, MICHAEL SCHEID, BETTY VANDERHOEF

North End Citizens Association

Northville State Hospital
MARY LOU BATTLE, JIM LUZADDER, LUISE RUNKEL

Oakland County Child and Adolescent Clinic
MARY KERR

Oakland County Juvenile Court, Children's Village
NORMAN RESTUM

Oak Park Department of Community Services

Oak Park Public Schools
MARGARET WHEELER

Operation Friendship
ALLAN GELFOND

Out-Wayne County Youth Services Coalition, Inc.
NANCY ALEXANDER LORBER

Pontiac General Hospital, Mental Health Clinic
LOREN O'DEA

Pontiac Public Schools
SIVIA EILENDER, JOHN LUSK

Pontiac Public Schools, Hawthorne Learning Center
ROBERT SYDANMAA

*PRESCAD — Wayne County Children's Health —
Inkster Child Health Center*
RITA TURNER

Project Headline
ANDREW KONWIAK, CHARLES STERN

Providence Hospital
JERRY AVRUSHIN, MONICA WENDLING

Psychotherapeutics, Inc.
CLIFFORD TINSLEY

Psycho-Therapeutic Treatment Clinic
ROBERT ENNIS

Rape Counseling Center
BARBARA SIMON

Rehabilitation Institute
AGNES MACKINNON

Romulus Help Center
LEN MELNICK

Room Enough To Grow
ALINDA FLUTIE, SUZANNE BALCER

SHAR House
GENEVIEVE LAFONTAINE

Sickle Cell Detection and Information Program
VERNA REID

Sinai Hospital Department of Psychiatry
BOBBIE GORDON, ALOHA VAN CAMP

Sinai Hospital of Detroit
MINNIE TE RONDE

Sinai Hospital of Detroit, Day Hospital Service
LINDWOOD BAGBY

Six Area Coalition Community Mental Health Center
RONALD ARCHAMBAULT, HELEN MADDOX,
RICHARD RAPP

Somalona Center
SALLY HARVEY

Southeastern Macomb Mental Health Clinic
CHARLOTTE ARKIN

St. Francis Home for Boys
SR. M. HONORA

St. Joseph Hospital, Macomb County, Community Guidance Center
JIM KENT, GLADYS MARTIN

St. Joseph Mercy Hospital, Social Service Department
DIANE WITTL

St. Joseph Mercy Hospital, Substance Abuse Department
ROBERT KERKORIAN

St. Peter's Home for Boys
JAMES ALTMAN

Suicide Prevention Center
BRUCE DANTO

Taylor School District
PATRICK COAKLEY, WALTER FRONTCZAK

Team for Justice
HOMER McCLARTY

Threshold
PHYLLIS WYRICK

Traveler's Aid Society
MARY WILLS

Troy Public Schools
JUDITH ALLEN

United Neighbors

Veteran's Administration Hospital, Allen Park

FRAN MCGIVERN, TOM MILLER, AARON RUBIN,
DAVE WASSENAAR

Walled Lake Schools

SHIRLEY DUMONT

*Wayne County Community College, Student Services,
Greenfield Center*

THOMAS H. RANDOLPH

Wayne County Department of Social Services

BENNIE DAVIS, GRADY FISHER, AUDREY GROSS, THOMAS HAMMOND, GERALD F. HIGGINS, MARGARET JACKSON, MICHAEL W. KEY, SHARON LOGAN, JANICE LONG, MARY E. MILLS, BARBARA NELSON, KATHLEEN NEUMAN, RALPH PATTERSON, LEON PLUMP, ROBERT PREUSS, DOLORES RODZEWICZ, GLADYS SLEDGE, BLANCHE SOLOMON, STEPHEN VROSS

Wayne County Family Counseling Service

GEORGE SCHRAUDER, EVELYN SETTLES

Wayne County Intermediate Schools

DONNA SEWREY

Wayne County Jail — Intake Unit

RICHARD WESTON

Wayne County Juvenile Court

MYLENE JONES

Wayne County Office of Program Development and Coordination

JAMES CURRAN

Wayne County Psychiatric Hospital

WILLETTE FRANKLIN, LILLIAN VAN DIVER

West Oakland Mental Health Center

KARL DISLER, DAVID GLADFELTER, ED KEENER

West Side Crisis Center

MARTHA SHERMAN

Windsor Group Therapy Project

DALE SWAISGOOD

Women's Division, United Automobile Workers

CHARLENE KNIGHT

Women's Justice Center

Youth Services Center of East Detroit

EDWARD KRATTLI

Additional Academic Programs

DEPARTMENT OF MORTUARY SCIENCE

Administrative Officers

W. Dale Walls, Associate Dean of Academic Administration
Walter D. Pool, Director
Gordon W. Rose, Associate Director

Faculty and Staff

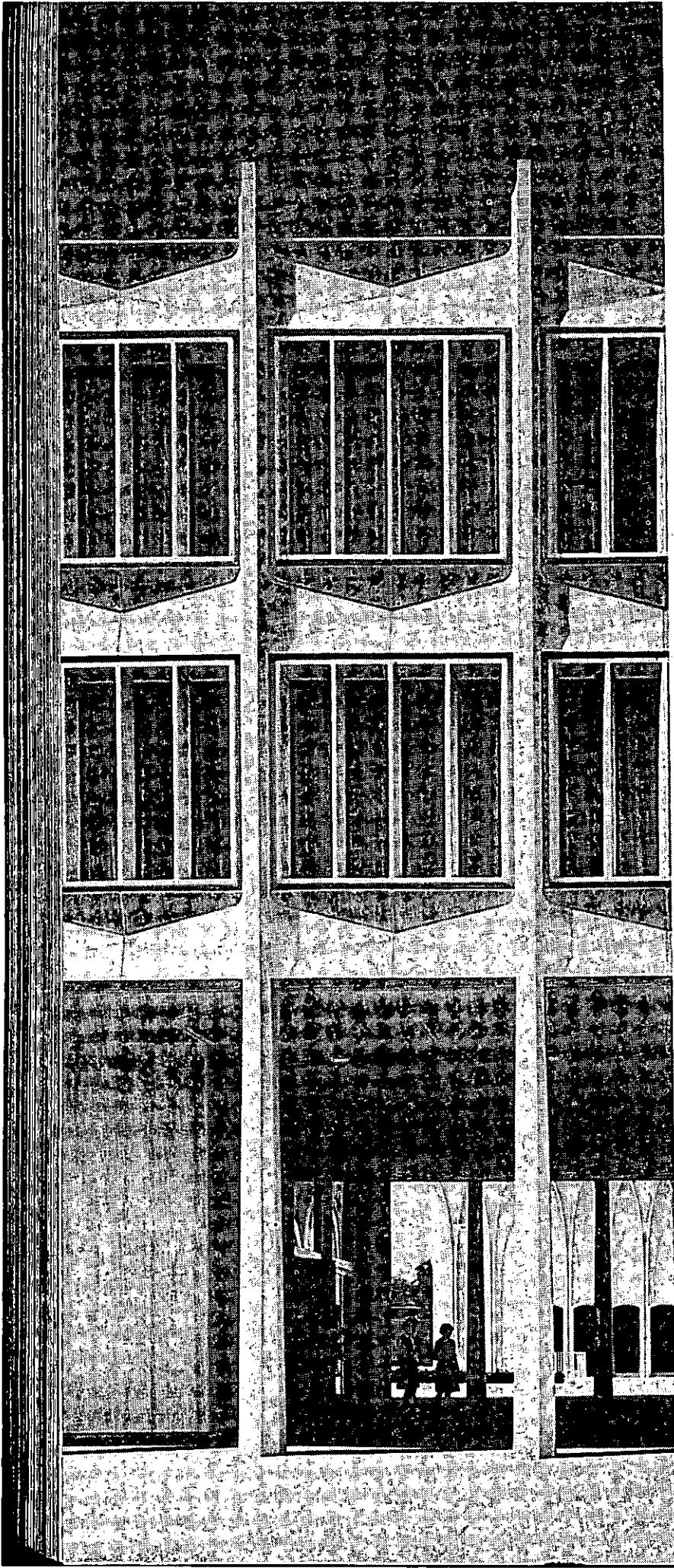
Gerald Alvin, Professor of Accounting, School of Business Administration
Gerald P. Cavellier, Instructor in Embalming
S. Nicholas Frontczak, Instructor in Mortuary Law
E. Arthur McAsh, Instructor in Mortuary Psychology
David B. Meyer, Professor of Anatomy, School of Medicine
Mary Louise Nebel, Professor of Chemistry, Detroit Institute of Technology
David A. Otto, Instructor in Restorative Art
Mary Louise Williams, Instructor in Human Anatomy and Physiology
W. Bennett Yort, Instructor in Mortuary Management
Thomas E. Zarembo, Instructor in Modeling

Wayne State University offers a professional program in funeral service education. In three years a student may earn a certificate in mortuary science in this program. In four years, including one summer session, he may earn both a certificate in mortuary science and a bachelor's degree from the School of Business Administration. The Departmental curriculum meets or exceeds the educational requirements of all states.

The services and facilities characteristic of a major university are available to students in this program. Laboratories are well equipped; faculty is selected from the staffs of the various departments of the University as well as from experienced practitioners in the community. There is an abundance of laboratory material available for training purposes. Direct departmental inquiries to: Department of Mortuary Science, 627 W. Alexandrine, Detroit, Michigan 48207, telephone 577-2050.

ADMISSION

Classes are admitted to the program in mortuary science in September of each year. Interested persons may secure application blanks from the University Admissions Office, Administrative Services Building, Wayne State University, or from the Mortuary Science Department. Applications should be submitted to the Admissions Office well in advance of September registration.



FEES

Pre-Professional Program

The fees for the pre-professional program in the College of Liberal Arts are the general University fees, given on page 11.

Professional Program

Full-time students in the professional program pay a fee of \$549 each quarter if they are residents of Michigan. Students classified as non-residents pay a fee of \$725 per quarter. The fee for part-time students in the professional program varies with the number of credit hours elected, as follows:

Credit Hours	Resident	Non-Resident
1 - 4	\$257.00	\$357.00
5	293.50	403.00
6	330.00	449.00
7	366.50	495.00
8	403.00	541.00
9	439.50	587.00
10	476.00	633.00
11	512.50	679.00
12 and above	549.00	725.00

FINANCIAL AIDS

Students in the Department of Mortuary Science are eligible for scholarships and loans available to all University students. Any student interested should direct his inquiry to the University office of Scholarships and Financial Aids, 222 Administrative Services Building.

In addition, students enrolled in the third or professional year of the mortuary science program are eligible to apply for loans made available by the Michigan Mortuary Science Foundation. Inquiries should be directed to the Director of the Department of Mortuary Science.

VOCATIONAL GUIDANCE AND PLACEMENT

Men and women contemplating careers in mortuary science may take advantage of the Department's and University's counseling services. Every effort is made by the Department staff to acquaint the applicant with the vocational aspects of the profession. Students are assisted in securing part-time employment in funeral homes upon request.

Additional vocational information may be obtained from the following publications:

Funeral Service, A Heritage, A Challenge, A Future, National Funeral Directors Association, 135 W. Wells Street, Milwaukee, Wisconsin 53203.

Laws Relating to the Practice of Mortuary Science, Lansing, Michigan, Michigan State Board of Examiners in Mortuary Science, 1973.

Merrill, Charles D., *Mortuary Science*, Vocational and Professional Monograph No. 67, Boston, Mass., Bellman Publishing Co., Inc., 1946.

THREE-YEAR CERTIFICATE PROGRAM

The educational program in mortuary science covers three academic years of college work. Two of these years are devoted to pre-professional studies which must be taken in the College of Liberal Arts of Wayne State University or at any regionally accredited college or junior college. For the third or professional year, the student registers in the Department of Mortuary Science at Wayne State University.

The program of professional study is offered during the University's regular academic year, which extends from early September to the middle of June. On satisfactory completion of the full three-year program the student is awarded a Certificate of Graduation in Mortuary Science.

Objectives

The fundamental objectives of the program are:

1. To provide the student with basic pre-professional college training and experience aimed at the development of
 - a. an understanding of human behavior and the structure of social relationships,
 - b. skills in written and oral communication,
 - c. knowledge in the physical and biological sciences,
 - d. a knowledge of elementary mathematics and the application of this knowledge to business operations,
 - e. a sense of social, cultural, and moral values,
 - f. conversance with other careers and allied professions,
 - g. capabilities for study inquiry, and creative thought;
2. By a process of vocational counseling and selection, to bring into training personnel who are qualified to carry on work at the college level and who have the personal capabilities which will enable them to serve the profession effectively;
3. To provide a professional program of training in mortuary science which includes:
 - a. a study of the fundamentals of applied biological and physical sciences as background for understanding techniques and procedures applicable to the preparation and disposition of human bodies and to public health and safety measures;
 - b. a study of management, methods, and organization;
 - c. the development of an understanding of personal behavior, social institutions, religious faiths and customs, and legal practices as they particularly relate to funeral service,
 - d. the development of a thorough understanding of the theory of and a proficiency in the practice of the technical skills pertinent to funeral service.

ADMISSION REQUIREMENTS

Third (Professional) Year

Applicants are considered for admission to the third (or professional) year of the program if they meet the following conditions:

1. Completion of at least fifty-two semester or seventy-eight quarter credits at an accredited collegiate institution with a grade of C or better in each course completed, or
2. Completion of at least fifty-two semester or seventy-eight quarter credits at a recognized but unaccredited collegiate institution with a cumulative average of B or better, or
3. Completion of at least fifty-two semester or seventy-eight quarter credits and demonstration of a proficiency through a testing program as prescribed by the Office of Admissions of Wayne State University.
4. Completion of the following required pre-professional courses.

PRE-PROFESSIONAL PREPARATION

To be considered for admission to the professional year, applicants must have completed (as part of the required fifty-two semester or seventy-eight quarter credits) the courses listed below. These courses are included in the certification requirement of the Michigan State Board of Examiners in Mortuary Science as of July 13, 1962. All transferred courses must have been passed with a grade of C or better if taken at an accredited college or university, or with a grade of B or better if taken at a recognized but unaccredited institution.

	<i>credits</i>
English	8
General Inorganic Chemistry	8
(2 quarters or 2 semesters)	
Zoology or Biology	4
Social Science	8
Psychology	4
Mathematics or Accounting	4

GRADUATION REQUIREMENTS

While only seventy-eight quarter credits in pre-professional college work are required for admission to the Professional Program, ninety credits in pre-professional college work are required for graduation. Students who do not have the full ninety credits will not be granted the Certificate in Mortuary Science until after this deficiency is removed.

CERTIFICATE REQUIREMENTS

To receive a Certificate of Graduation in Mortuary Science, a student must have presented evidence of satisfactory com-

pletion of sixty semester or ninety quarter credits in professional college work including the credits in college required for admission (above), and he must have satisfactorily completed fifty-one credits in professional mortuary science courses as described at the end of this section below.

A student who graduates from the Wayne State University program in mortuary science meets the academic requirements for licensure in Michigan and all other states.

The Department expects its graduates to satisfy the high ethical standards expected of those in professional funeral service.

MICHIGAN STATE LICENSURE

To become a licensed mortician in the State of Michigan one must:

1. Complete two academic years (60 semester hours) of instruction at any regionally accredited or recognized collegiate institution, with grades of C or better, and including required courses as determined by the State Board.
2. Graduate from a regionally approved program of mortuary science. Applicants for a Michigan license must register with the State Board of Mortuary Science before entering a mortuary science college. (After January 1, 1964, all Michigan students must graduate from a regionally accredited mortuary program);
3. Complete one year of resident training under the personal supervision of a licensed mortician. The Board may waive the requirement of one year of resident training if the applicant has an additional year of instruction in a program duly accredited beyond the three years prescribed. Special application must be made to the Board for waiver of resident training;
4. Pass examinations as determined by the State Board;
5. Be at least eighteen years of age, a resident of Michigan, a citizen of the United States, and of good moral character.

For further information, address: State Board of Mortuary Science, 1116 S. Washington, Lansing, Michigan 48926.

DEGREE PROGRAM

— with the School of Business Administration

Mortuary Science students may secure a bachelor's degree in Business Administration in addition to the Certificate in Mortuary Science. For specific requirements consult the Office of Undergraduate Student Services, School of Business Administration.

PROFESSIONAL COURSES OF INSTRUCTION¹ (M S)

The following courses in mortuary science are elected during the third year of the three-year program. With the exception of laboratory work in chemistry and microbiology, this work is given in the departmental building at 627 West Alexandrine.

First Quarter

0305. Human Anatomy and Physiology. Cr. 4.

Lectures and laboratory dissection of the human body; regional and systemic study of anatomy and physiology, study of vascular system, anatomical guides, and landmarks important to embalming.

0310. Chemistry. Cr. 5.

Review of inorganic chemistry and a survey of organic and biological chemistry. Lecture and laboratory.

0350. Embalming I. Cr. 3.

Theories, practices and techniques of sanitation and preservation related to the care of dead human bodies. Case analysis, anatomy of embalming, fluid analysis, particularly in adult and infant embalming. Uses of instruments and equipment as related to embalming. Lecture and laboratory.

0360. Restorative Art and Modeling. (1,3). Cr. 2.

Theories, methods, and techniques used in restorative art. Color theory, cosmetology, facial proportions, fundamentals of color in theory and use of water colors with the object of a deeper understanding of the various skin tones combined in human complexion; modeling of individual facial features in clay and wax; actual restorations performed on dead human remains. Lecture and laboratory.

0380. Mortuary Management. Cr. 2.

Problems involved in the practice of funeral management such as: the selection of site, personnel records and legal forms, funeral directing, merchandising, mortuary ethics, public relations, and association procedure.

Second Quarter

0330. Medical Science. Cr. 2.

A study of the general cause and nature of disease; specific diseases in relationship to mortuary science; autopsy procedure.

0340. Mortuary Law. Cr. 4.

Legal disposition of dead human remains; legal responsibilities of the mortician; common and statutory laws; state laws regarding funeral service establishments; interment and disinterment; cemeteries and transportation of the dead; probate law; ethical, moral, legal and professional responsibilities.

0351. Embalming II. Cr. 3.

Prereq: M S 0350. Continuation of Mortuary Science 0350.

0361. Restorative Art and Modeling. (1,3). Cr. 2.

Prereq: M S 0360. Continuation of Mortuary Science 0360.

0375. Mortuary Accounting. Cr. 4.

Basic accounting principles and practice with emphasis upon the development of systematic records for a funeral home; preparation and interpretation of financial statements.

0381. Mortuary Management. Cr. 2.

Prereq: M S 0380. Continuation of Mortuary Science 0380.

0390. Psychology of Funeral Service. Cr. 2.

The role of the mortician; how he sees himself in relation to the bereaved; community acceptance of the mortician and funeral service practices. Active involvement of the mortician in social changes as they relate to death and dying.

Third Quarter

0325. Microbiology. Cr. 5.

A study of pathogenic bacteria, fungi, rickettsia and viruses; disinfection, sterilization, and sanitation; immunity; epidemiology. Microscopy; staining technology; cultural and biochemical studies; media preparation; water bacteriology; evaluation of chemical disinfectants. Lecture and laboratory.

0331. Medical Science. Cr. 2.

Prereq: M S 0330. Continuation of Mortuary Science 0330.

0351. Embalming III. Cr. 3.

Prereq: M S 0351. Continuation of Mortuary Science 0351.

0361. Restorative Art and Modeling. (1,3). Cr. 2.

Prereq: M S 0361. Continuation of Mortuary Science 0361.

0381. Mortuary Management. Cr. 2.

Prereq: M S 0381. Continuation of Mortuary Science 0381.

0390. Psychology of Funeral Service. Cr. 2.

Prereq: M S 0390. Continuation of Mortuary Science 0390.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

ROTC PROGRAMS

Military Science

The Department of Military Science provides Wayne State University students with an Officer Education Program through cross-enrollment agreements with the University of Detroit. The Officer Education Program allows qualified applicants to receive commissions as Second Lieutenants in the United States Army. Other interested students may select military science courses for elective credit without participating in leadership training or incurring any military obligation.

The Reserve Officers' Training Corps (ROTC) offers both a four-year and a two-year program. The four-year program consists of a two-year basic course, a two-year advanced course, and a six week summer camp normally attended between the junior and senior years. Students having prior ROTC including Junior ROTC or prior military service may be given placement credit for part or all of the basic course. The two-year program is by application only and consists of a six week basic course and the advanced summer camp. All students with two years of school remaining (graduate or undergraduate) are eligible; however, applications are only accepted during the second term for enrollment the following fall semester.

ROTC cadets are eligible for three, two and one year scholarships which pay tuition, textbooks, laboratory fees and other educational expenses. In addition, the advanced course students and all scholarship students receive a tax free subsistence allowance of \$100 per month during the school year. Books and uniforms are furnished at no cost to students. Cadets who maintain high academic and leadership standards and who are selected as Distinguished Military Students are eligible to apply for Regular Army Commissions. Interested students can contact the Professor of Military Science, University of Detroit; telephone 927-1303.

COURSES OF INSTRUCTION¹ (MSC)

Basic Courses

Eligibility Requirements: Any physically fit male or female freshman or sophomore student who is a United States citizen may enroll. Enrollment consists of an academic course and a military arts laboratory period.

0101. The Military Profession. Cr. 1.

Prereq: admission to ROTC and consent of instructor. Introduction to the Reserve Officers' Training Corps at the University of Detroit. The functioning and purpose of the corps, its obligations, benefits and curriculum. In addition, such topics as the role of the Army, national defense structure, scholarships and customs and courtesies of the Army as well as development of leadership abilities will be discussed in preparation for Military Science 0103.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.

0102. The Military Profession. Cr. 1.

Prereq: admission to ROTC and consent of instructor. Continuation of Military Science 0101.

0103. Introduction to Applied Leadership and Management. Cr. 3.

Prereq: admission to ROTC and consent of instructor. Introduction to the basic responsibilities of the small unit leader. Continuation of Military Science 0101. Conferences and practical exercises in the assembly, disassembly and care of the M16 rifle and reporting, forming and controlling small units. In addition, cadets will be provided the opportunity to participate in small unit exercises.

0201. Map Reading. Cr. 1.

Prereq: admission to ROTC and consent of instructor. Development in the ROTC cadet, through conference and practical exercise, of the ability to utilize marginal information and the military grid system, to measure distances, determine and mark azimuths, as well as to locate positions on a map by polar coordinates, intersection, resection and modified resection. Emphasis is also given to compass usage, terrain navigation and photo maps.

0202. Map Reading. Cr. 1.

Prereq: admission to ROTC and consent of instructor. Continuation of Military Science 0201.

0203. Applied Leadership and Management. Cr. 1.

Prereq: admission to ROTC and consent of instructor. Development in the ROTC cadet, through conference and practical exercise, of the ability in the areas of small unit operations, including reporting, posting, in-rank positions, and basic drill and ceremonial procedures.

Advanced Courses

Eligibility Requirements: Any qualified male student with two years of undergraduate or graduate college remaining and a citizen of the United States may enroll after successfully completing the following:

- Questionnaire and interview.
- Physical examination.
- Satisfactory SAT or ACT scores.
- Successful completion of the Basic Course or Basic Summer Camp or more than one year of prior military active duty.

0301. Advanced Leadership and Management. Cr. 3.

Prereq: admission to ROTC and consent of instructor. Development in the ROTC cadet, through conference and practical exercise, of leadership potential, concentration on traits, principles, behavior and problem solving.

0302. Military Speaking. Cr. 3.

Prereq: admission to ROTC and consent of instructor. Major emphasis is given to developing instructional and speaking ability. Further development of leadership skills is pursued during the practical exercise portion of the class.

0303. Advanced Camp Seminar. Cr. 3.

Prereq: admission to ROTC and consent of instructor. Preparation of the ROTC cadet for the six weeks advance camp conducted at Fort Riley, Kansas. Major emphasis placed on training

and ceremonies, orienteering, offensive and defensive tactics, physical training, evaluation and field training exercises. Pre-camp qualifications and administration.

0401. Advanced Management I. Cr. 3.

Prereq: admission to ROTC and consent of instructor. Study of staff organization, functions, types and duties in relation to the commander.

0402. Advanced Management II. Cr. 3.

Prereq: admission to ROTC and consent of instructor. Practical exercise of cadet staffing procedures and missions. Military justice also briefly discussed.

0403. Advanced Leadership Seminar. Cr. 3.

Prereq: admission to ROTC and consent of instructor. Providing the cadet with service obligation, pay, medical processes and basic administration. Basic concepts and roles of the officer/leader in management and logistics. Cadets play major role in corps administration and functioning as a prelude to active duty.

Aerospace Studies

The Air Force Officer Education Program at the University of Michigan, Ann Arbor, through a cross-enrollment agreement, provides Wayne State students with the opportunity to earn a commission as a Second Lieutenant in the U.S. Air Force through the Air Force R.O.T.C. (AFROTC). A two-year program is offered; Aerospace Studies classes are conducted on the University of Michigan campus.

The two-year program sequence of courses provides an understanding of concepts of leadership, management responsibilities and skills, as well as an understanding of national defense policy and the role of the military officer in our society. The program comprises an initial six-week field training course followed by four *semester* terms of Aerospace Studies (ASC 0310 through ASC 0411 series). Students may compete for a limited number of two-year AFROTC scholarships.

Requirements for Enrollment: Qualified male and female students who can complete four terms of Aerospace Studies prior to receiving their degree are eligible for enrollment in the program. They must meet all requirements for commissioning prior to their thirtieth birthday (exceptions: under age 26½ for pilot and navigator; under age 25 for scholarship program cadets). To obtain entrance to the two-year program, students should contact the AFROTC by February of the sophomore year. The candidate will attend a six-week field training course at an Air Force base during the summer. The two-year candidate must have two years of school remaining which could consist of undergraduate, a combination of undergraduate and graduate, or solely graduate training. Students with prior military service may participate in the program. An admittee to the program assumes a contractual obligation to complete the program, accept a commission, and, if called to active duty, serve as an officer.

Scholarships and Monetary Allowances: All students receive a subsistence allowance of \$100 per month. Students awarded a two-year scholarship receive full tuition, laboratory fees, and book costs, in addition to the subsistence allowance.

Flying Activities: In a Flight Instruction Program, qualified senior-year students desiring to be Air Force pilots receive approximately twenty-five hours of dual and solo light plane instruction under a licensed civilian instructor.

Uniforms and Books: A uniform and the necessary books are furnished. A uniform deposit of \$20 is required and is refunded when the uniform is returned or becomes a gift of the University on the date of commissioning.

Assignments in the Air Force: Students successfully completing the program and receiving a baccalaureate degree are commissioned as second lieutenants in the United States Air Force Reserve. These new officers can be called to active duty with the Air Force for a period of four years for non-flying officers, normally in an area related to their degree, and five years after flight school for pilots and navigators. Men and women can serve in any of several officer utilization fields: meteorology, research and development, communications/electronics, engineering, transportation, logistics, intelligence, administrative services, accounting and finance, personnel, statistics, manpower management, education and training, investigation, and information services. Advanced education or technical training for these career areas may be obtained on active duty at Air Force expense.

The program office is located in North Hall, University of Michigan. Additional information can be obtained by calling AFROTC at 313-764-2405, or by writing to AFROTC, North Hall, University of Michigan, Ann Arbor, Michigan 48109.

COURSES OF INSTRUCTION¹ (ASC)

0310. Concepts of Leadership. Cr. 5.

Prereq: admission to AFROTC and consent of instructor. Seminar: 3 hours a week; Leadership Laboratory: 1 hour a week. The concepts, principles, and techniques of leadership and human relations presented within the framework of behavioral theories.

0311. Principles of Management. Cr. 4.

Prereq: admission to AFROTC and consent of instructor. Seminar: 3 hours a week; Leadership Laboratory: 1 hour a week. Historical overview of management theory development with particular consideration of behavioral science's impact on the primary management functions.

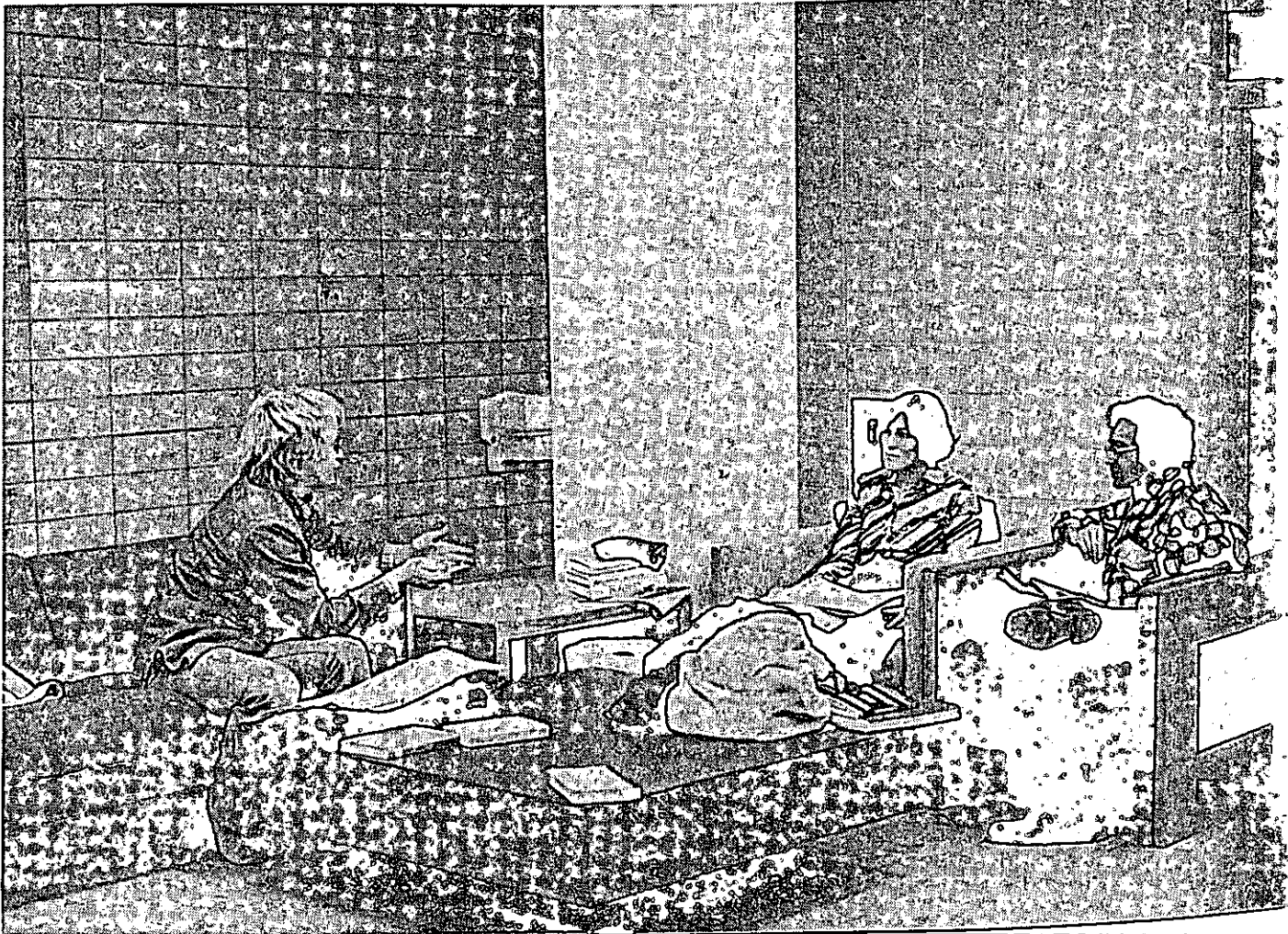
0410. National Security Forces in Contemporary American Society I. Cr. 3.

Prereq: admission to AFROTC and consent of instructor. Seminar: 3 hours a week; Leadership Laboratory: 1 hour a week. The Armed Forces as an integral element of society. Examination of a broad range of American civil-military relations and the environmental context in which defense policy is formulated.

0411. National Security Forces in Contemporary American Society II. Cr. 3.

Prereq: admission to AFROTC and consent of instructor; ASC 0410. Seminar: 3 hours a week; Leadership Laboratory: 1 hour a week. Continuation of ASC 0410.

¹ See page 661 for interpretation of numbering system, signs and abbreviations.



Faculty of the University

FACULTY OF THE UNIVERSITY

For interpretation of faculty roster abbreviations see page 662.

- ALI ABBASI: M.D., Damascus University; Assistant Professor (FTA) of Internal Medicine
- PHILIP ABBOTT: B.A., American University; M.A., Ph.D., Rutgers University; Associate Professor of Political Science
- R. RODERICK ABBOTT: B.S., Illinois State Normal University; M.D., Jefferson Medical College; Clinical Instructor in Internal Medicine
- MARTIN M. ABBRECHT: M.D., University of Michigan; Clinical Instructor in Dermatology and Syphilology
- ELIE D. ABOULAFIA: B.S., M.D., University of Geneva; M.S., Tufts University; Clinical Instructor in Surgery
- RALPH ABRAMOWITZ: B.S.S., City College of New York; M.S.W., University of Pittsburgh; Associate Professor, School of Social Work
- MICHAEL F. ABRAMSKY: Ph.B., Wayne State University; M.A., Ph.D., State University of New York at Buffalo; Adjunct Assistant Professor of Psychology
- HANLEY N. ABRAMSON: B.S. (Pharmacy), Wayne State University; M.S., Ph.D., University of Michigan; Associate Professor of Pharmaceutical Chemistry
- EDWARD G. ADAMEK: B.A., Park College; M.Ed., University of Missouri; Ed.D., University of Illinois; Professor of Education
- JAMES ADAMS: B.S., Kearney State College; M.S., Wayne State University; Instructor in Medical Technology
- VINCENT B. ADAMS: B.S., M.D., Wayne State University; Clinical Instructor in Family Medicine
- R. KING ADAMSON: B.A., Ph.D., University of Wisconsin; Dean of the College of Liberal Arts and Associate Professor of Economics
- MARTIN J. ADELMAN: B.A., M.S., J.D., University of Michigan; Professor of Law
- SUSAN E. ADELMAN: B.S., University of Michigan; M.D., Wayne State University; Clinical Instructor in Surgery
- IRWIN P. ADELSON: B.A., M.D., University of Michigan; Clinical Instructor in Psychiatry
- SEYMOUR S. ADELSON: A.B., Wayne State University; M.D., University of Michigan; Clinical Instructor in Internal Medicine
- SIDNEY ADLER: B.A., Albion College; M.D., Johns Hopkins University; Clinical Assistant Professor of Internal Medicine
- KRISHNA AGARWAL: B.E., Regional Engineering College, India; M.S., Ph.D., State University of New York; Assistant Professor of Mathematics
- JUDITH AGEE: B.S.N., University of Michigan; M.S.N., Wayne State University; Assistant Professor of Nursing
- JOEL W. AGER: B.A., Colgate University; M.A., Ph.D., Syracuse University; Professor of Psychology
- SANDOR AGOCS: D.Litt., Eotvos University; Ph.D., University of Rochester; Assistant Professor of Social Science
- KORKUT M. AKAN: B.S., M.D., Ankara University; Clinical Instructor in Family Medicine
- A. AMIR AL SAADI: B.A., University of Baghdad; M.A., University of Kansas; Ph.D., University of Michigan; Clinical Instructor in Pathology
- MUHYI AL-SARRAF: M.D., University of Baghdad; Associate Professor of Oncology
- DONALD G. ALBERT: M.D., Temple University; Clinical Assistant Professor of Internal Medicine
- WILLIAM C. ALBERT: A.B., Columbia University; M.D., Case Western Reserve University; Clinical Instructor in Ophthalmology
- JOSEPH L. ALBINI: B.A., Pennsylvania State University; M.A., Louisiana State University; Ph.D., Ohio State University; Professor of Sociology
- ALBERT J. ALBRECHT: B.S., University of Detroit; Wayne State University; Clinical Instructor in Internal Medicine
- JOSE A. ALCALA: B.A., M.A., University of Michigan; Ph.D., University of Illinois; Assistant Professor of Internal Medicine
- ELSA ALCANTARA: M.D., University of Santo Tomas; Clinical Instructor in Internal Medicine
- GERALD W. ALDRIDGE: B.A., Texas University of Technology; M.P.A., State University of New York at Albany; Instructor in Community Medicine
- RUDI ALEC: B.S., University of New York at New York; M.S., State University of New York at Albany; Michigan State University; Assistant Professor of Internal Medicine
- GABRIEL N. ALEXANDER: B.A., J.D., University of Michigan; Professor of Law
- LEONARD C. ALEXANDER: M.D., Boston University; Clinical Assistant Professor of Internal Medicine
- SHELDON ALEXANDER: B.A., City College of New York; Ph.D., University of Rochester; Chairman and Professor of Psychology
- STANLEY ALFRED: B.A., University of Michigan; M.D., Wayne State University; Clinical Instructor in Dermatology and Syphilology
- ROBERT D. ALLABEN: B.S., University of Michigan; M.D., Wayne State University; Clinical Assistant Professor of Surgery
- CHARLES R. ALLBERRY: B.S., Ohio University; M.B.A., University of Detroit; Associate Professor of Accounting
- BESS E. ALLEN: B.A., M.A., Ph.D., University of Cincinnati; Associate Professor Emerita of Mathematics
- DORIS V. ALLEN: B.S., University of Michigan; M.A., Ph.D., Wayne State University; Associate Professor of Audiology
- JEANNE A. ALLEN: B.F.A., M.A., Cornell University; Associate Professor of Family and Consumer Resources
- JOYCE ALLEN: B.A., M.S.W., Wayne State University; Assistant Professor, School of Social Work
- WILLIAM A. ALLEN: B.S., M.S., University of Wisconsin; Professor of Art
- VINCENT C. ALMAZAN: Licence, University of Strasbourg; Ph.D., University of Koln; Professor of French
- E. BRYCE ALPERN: A.B., University of Michigan; M.D., Johns Hopkins University; Clinical Associate Professor of Pediatrics
- EDWARD ALPERT: B.S., Fordham University; Ph.D., M.D., University of Michigan; Clinical Assistant Professor of Internal Medicine
- JULES ALTMAN: B.S., Wayne State University; M.D., University of Michigan; Clinical Associate Professor of Dermatology and Syphilology
- GERALD ALVIN: B.S., J.D., M.B.A., Wayne State University; Professor of Accounting and Adjunct Professor of Law
- WALTER J. AMBINDER: B.S., M.A., City College of New York; Ph.D., Cornell University; Professor of Education
- EFFIE AMBLER: A.B., Bryn Mawr College; M.A., Ph.D., Indiana University; Assistant Professor of History
- ERNEST J. AMENT: A.B., John Carroll University; M.A., Ph.D., St. Louis University; Chairman and Associate Professor of Greek and Latin
- MAGID H. AMER: M.D., Cairo University; Assistant Professor of Oncology
- VICTOR K. AMETEWEE: B.A. Ed., University of Ghana; M.A., M.Ed., Kent State University; Instructor in Social Science
- ROBERT W. AMIDON: B.S., Western Michigan University; M.S.W., Michigan State University; Assistant Professor, School of Social Work
- HASSAN AMIRIKIA: B.A., M.D., Tehran University; Assistant Professor of Gynecology and Obstetrics
- HASSAN AMJAD: M.B., B.S., King Edward Medical College; Instructor in Internal Medicine
- K. M. ANANDAIAH: M.B., B.S., Government Medical College, India; Assistant Professor (FTA) of Internal Medicine
- ROMULO S. ANCOG: B.S., University of Philippines; M.D., Far Eastern University; Instructor in Psychiatry
- LOURDES V. ANDAYA: A.A., M.D., University of Santo Tomas; Instructor in Neurology
- GERALD M. ANDERSON: B.A., M.A., Michigan State University; Instructor in Social Science
- GORDON F. ANDERSON: B.S., Ferris State College; M.S., Ph.D., Wayne State University; Professor of Pharmacology

- JOHN A. ANDERSON: B.S., University of Chicago; M.D., Howard University; Clinical Assistant Professor of Radiology
- KARL O. ANDERSON: B.S., M.Ed., Wayne State University; Assistant Professor of Engineering Technology
- LYNN R. ANDERSON: B.S., Brigham Young University; A.M., Ph.D., University of Illinois at Urbana; Associate Professor of Psychology
- ROBERT B. ANDERSON: B.A., Hamline University; Assistant Professor of Economics
- WALTER L. ANDERSON: B.A., B.S., M.D., University of Nebraska; Clinical Associate Professor of Internal Medicine
- WAYNE ANDREWS: A.B., Harvard College; Ph.D., Columbia University; Professor of Art History
- RICHARD B. ANGELL: B.A., Swarthmore College; M.G.A., University of Pennsylvania; M.A., Ph.D., Harvard University; Chairman and Professor of Philosophy
- RICHARD D. ANSLOW: B.A., University of Michigan; M.D., Wayne State University; Clinical Assistant Professor of Internal Medicine
- MAXINE ANTIOCHIA: B.M., Wayne State University; Adjunct Assistant Professor of Music
- GREGORY A. ANTIPA: A.B., University of California; M.A., San Francisco State College; Ph.D., University of Illinois; Assistant Professor of Biology
- ARTHUR E. ANTISDEL: B.S., Eastern Michigan University; M.S.W., University of Michigan; Associate Professor, School of Social Work
- HOWARD APPELMAN: B.S., M.S., M.D., University of Illinois; Clinical Assistant Professor of Internal Medicine
- JULIA C. ARBOGAST: B.S., West Virginia Wesleyan University; M.S., Virginia Polytechnic Institute; Assistant Professor of Family and Consumer Resources
- AGUSTIN ARBULU: M.D., San Marcos University School of Medicine; Professor of Surgery
- FEDERICO A. ARCARI: M.B., Ch.B., Glasgow University Medical School; Clinical Assistant Professor of Surgery
- RENE F. ARCHAMBAULT: A.B., University of Montreal; M.S., University of Pennsylvania; M.D., Creighton University; Adjunct Associate Professor of Anatomy
- EDUARDO ARCINIEGAS: B.S., Colegio San Simon; M.D., National University School of Medicine (Columbia); Clinical Associate Professor of Surgery
- EDGARDO ARCINUE: A.A., M.D., University of the Philippines; Assistant Professor of Pediatrics
- LUCENIA E. ARCINUE: B.A., University of Philippines at Quezon City; M.D., University of Philippines at Manila; Instructor (FTA) in Anesthesiology
- JOSEPH ARENDS: B.S., University of Detroit; M.D., Wayne State University; Clinical Instructor in Family Medicine
- MOHAMED A. ARIANI: M.D., Tehran Medical School; Clinical Instructor in Gynecology and Obstetrics
- ROBERT ARKING: B.S., Dickinson College; Ph.D., Temple University; Assistant Professor of Biology
- THOMAS C. ARMINSKI: B.S., M.D., Wayne State University; Clinical Instructor in Surgery
- JOSEPH T. ARMSTRONG: A.B., Carlton College; Ph.D., University of Michigan; Professor of Natural Science
- FORREST J. ARNOLD: B.S., M.D., Wayne State University; Clinical Assistant Professor of Radiology
- HAROLD ARNOLD: B.S., M.Ed., Wayne State University; Professor of Music
- A. ROBERT ARNSTEIN: M.D., Washington University; Professor of Internal Medicine
- REGINE ARONOW: B.A., Carleton College; B.S., B.M., M.D., University of Minnesota; Assistant Professor of Pediatrics
- A. RONALD ARONSON: A.B., Wayne State University; M.A., Ph.D., Brandeis University; Assistant Professor of Humanistic Studies
- CHAUTH RAM ARORA: B.Sc., Aligarh Muslim University; B.Sc., M.S., Indian School of Mines; Ph.D., Boston University; Assistant Professor of Science and Technology
- DAVID ASDOURIAN: B.A., College of the City of New York; Ph.D., University of Illinois; Professor of Psychology
- INGIDA ASFAW: B.S., Eastern Mennonite College; M.D., Indiana University School of Medicine; Assistant Professor of Surgery
- DANIEL M. ASHBY: B.S. (Pharmacy), Wayne State University; Adjunct Instructor in Clinical Pharmacy
- BENJAMIN B. ASHCOM: A.B., A.M., Pennsylvania State University; Ph.D., University of Michigan; Professor Emeritus of Spanish
- PHYLLIS A. ASHINGER: B.S., Indiana University; M.A., University of Michigan; Assistant Professor of Family and Consumer Resources
- MARGARET ASHWORTH: B.S., Tennessee State University; M.Ed., Wayne State University; Associate Professor of Education
- ROY ASTON: B.A., University of Windsor; M.Sc., Wayne State University; Ph.D., University of Toronto; Associate Professor of Pharmacology in Anesthesiology
- SAMUEL ASTRACHAN: B.A., Columbia College; Associate Professor (Visiting) of English
- ZACARIAS G. ASUNCION, JR.: A.A., M.D., University of Philippines; Clinical Instructor in Surgery
- BARBARA C. ASWAD: B.A., M.A., Ph.D., University of Michigan; Associate Professor of Anthropology
- MARTIN ATDJIAN: B.S., Colegio Nacional, Argentina; M.D., University of Cordoba, Argentina; Clinical Assistant Professor of Internal Medicine
- LONNIE H. ATHENS: B.S., Virginia Polytechnic Institute and State University; M.S., University of Wisconsin at Madison; D.Crim., University of California at Berkeley; Assistant Professor of Sociology
- FRED G. ATTEBURY: B.F.A., M.A., University of Illinois; Associate Professor of Education
- BLAISE U. AUDET: L.M.C.C., Seminaire De Quebec; B.A., Laval University; M.D., Wayne State University; Assistant Professor of Neurosurgery
- CARL AUSTIN: B.A., Wayne State University; Adjunct Assistant Professor of Music
- EMILY AUSTIN: Adjunct Assistant Professor of Music
- SHIRLEY AUSTIN: B.A., Connecticut College for Women; M.D., University of Pennsylvania; Associate Professor of Anesthesiology
- JOHN DAVID AUSUM: B.A., M.D., University of Michigan; Clinical Assistant Professor of Dermatology and Syphilology
- ARNOLD R. AXELROD: B.A., Ohio University; M.D., M.S., Wayne State University; Professor (FTA) of Internal Medicine
- SOLOMON J. AXELROD: A.B., Dartmouth College; M.P.H., University of Michigan; M.D., Jefferson Medical College; Clinical Professor of Community Medicine
- JAIME AYALA: B.S., Colegio S.J. De Guanenta; M.D., Universidad Nacional; Clinical Instructor in Psychiatry
- ESTHER A. AZZARIO: Profesora en Letras, Universidad de Buenos Aires; Ph.D., State University of New York at Albany; Assistant Professor of Spanish
- MARIETTA BABA: B.A., M.A., Ph.D., Wayne State University; Assistant Professor of Science and Technology
- PAUL W. BABCOCK: B.S., University of Detroit; M.D., St. Louis University; Clinical Instructor in Otolaryngology
- ROBERT D. BACH: B.A., M.S., University of Delaware; Ph.D., Massachusetts Institute of Technology; Professor of Chemistry
- GREGORY F. BACHELIS: B.A., Reed College; M.A., Ph.D., University of Oregon; Associate Professor of Mathematics
- LARRY D. BACON: B.S., M.S., Ph.D., Kansas State University; Assistant Professor of Immunology and Microbiology
- KYOUNG-SOO BAE: M.D., Chunnam Medical School; Clinical Instructor in Radiology
- CHARLES A. BAEBLER: B.S., Ohio State University; M.S., University of Toledo; Ph.D., Wayne State University; Assistant Professor of Physiology
- MIHIR BAGCHI: B.S., Bihar University; M.S., Ranchi University; Ph.D., University of Vermont; Assistant Professor of Anatomy
- NANDALAL BAGCHI: B.Sc., M.B., B.S., University of Calcutta; Ph.D., University of Alberta; Assistant Professor of Internal Medicine
- EUGENE S. BAGINSKI: B.S., M.S., Ph.D., Wayne State University; Clinical Associate Professor of Pathology
- JOSEPH C. BAGSHAW: B.A., Johns Hopkins University; Ph.D., University of Tennessee, Oak Ridge Graduate School; Assistant Professor of Biochemistry
- EUGENE BAHN: B.A., M.A., Ph.D., University of Wisconsin; Professor of Speech
- HAROLD E. BAILEY: Ph.D., Professor Emeritus of Pharmacognosy

- JERRY G. BAILS: B.S., M.A., Ph.D., University of Kansas City; Professor of Science and Technology
- BRONISLAW BAJON: B.A., Duchowne Seminary; Doctor of Sociology, Gregorian University; Assistant Professor of Sociology
- ALMA BAKER: B.S., Medical College of Virginia; M.S., Indiana University; Ph.D., University of Michigan; Assistant Professor of Nursing
- DONALD BAKER: Adjunct Assistant Professor of Music
- LAURENCE H. BAKER: B.A., Brooklyn College; D.O., Des Moines College of Osteopathic Medicine; Associate Professor of Oncology
- HARRY BALBEROR: A.B., M.D., M.S., Wayne State University; Clinical Assistant Professor of Internal Medicine
- MATTHEW A. BALCERSKI: B.S., Western Reserve University; M.D., M.S., Wayne State University; Clinical Assistant Professor of Internal Medicine
- PATRICIA A. BALL: B.S., University of Michigan; M.D., Wayne State University; Instructor (FTA) in Internal Medicine
- DONALD R. BALLARD: B.S., Lasierra College; M.D., Loma Linda University; Clinical Instructor in Family Medicine
- J. GREGORY BALLENTINE: G.S., Spring Hill College; Ph.D., Rice University; Assistant Professor of Economics
- DONALD L. BALTZ: B.A., College of Wooster; M.D., University of Cincinnati; Clinical Instructor in Otolaryngology
- GERALD BANISH: B.S., University of Michigan; M.D., Wayne State University; Clinical Instructor in Family Medicine
- MARSHALL D. BANKS: B.S., Virginia Union University; M.D., Meharry Medical College; Instructor in Urology
- DONALD MAX BANNASCH: B.S., M.Ed.; Wayne State University; Instructor in Occupational Therapy
- GEORGE D. BARAHAL: B.A., M.A., Wayne State University; Ph.D., Stanford University; Professor of Education
- LORETTA BARBER: B.S., Michigan State University; M.S., University of Colorado; Assistant Professor of Nursing
- E. MARTIN BARBOUR: B.A., M.D., Marquette University; Assistant Professor of Internal Medicine
- MAXWELL B. BARDENSTEIN: M.D., University of Toronto; Clinical Associate Professor of Orthopedic Surgery
- BENJAMIN BARENHOLTZ: B.S., B.M., M.D., Wayne State University; Clinical Associate Professor of Psychiatry
- RAPHAEL BARFI: M.D., Hebrew University; Assistant Professor (FTA) of Internal Medicine
- ROBERT C. BARGER: B.S. (Pharmacy), M.S., Wayne State University; Adjunct Assistant Professor of Clinical Pharmacy
- JOHN L. BARKAI: B.B.A., M.B.A., J.D., University of Michigan; Associate Professor of Law
- CHARLES PAUL BARKER: A.B., University of Michigan; M.D., George Washington University; Clinical Assistant Professor of Psychiatry
- MYRON BARLOW: A.B., Johns Hopkins University; M.D., University of Michigan; Clinical Assistant Professor of Dermatology and Syphilology
- ROBERT D. BARNARD: B.S.E.E., M.S.E.E., Brooklyn Polytechnic Institute; Ph.D., Case Western Reserve University; Professor of Electrical and Computer Engineering
- MARY L. BARNETT: B.A., University of Northern Iowa; M.S., MacMurray College; Ph.D., University of Michigan; Assistant Professor of Physical Education
- MARION I. BARNHART: A.B., Ph.D., University of Missouri; M.S., Northwestern University; Professor of Physiology
- CLEMENT BARONE: Adjunct Assistant Professor of Music
- DANIEL R. BARR: B.A., University of Michigan; M.D., Wayne State University; Clinical Instructor in Ophthalmology
- MARTIN BARR: B.S. (Pharmacy), Temple University; M.S., Philadelphia College of Pharmacy and Science; Ph.D., Ohio State University; Secretary to the Board of Governors, University Vice President and Professor of Pharmaceutics
- ROBIN A. BARRACO: B.A., Georgetown University; Ph.D., Wayne State University; Assistant Professor of Physiology
- RAYMOND J. BARRETT: B.S., University of Akron; M.D., Case Western Reserve University; Clinical Assistant Professor of Surgery
- DENNIS R. BARRIE: B.A., Oberlin College; M.A., Wayne State University; Adjunct Professor of Art History
- ROBERT A. BARRON: B.S., M.D., Cambridge University; Clinical Instructor in Internal Medicine
- DAVID BARSKY: A.A., Regina College; M.D., Queens University; Clinical Associate Professor of Ophthalmology
- RICHARD W. BARTKE: B.A., J.D., University of Washington; LL.M., Yale University; Professor of Law
- FLORIAN BARTOSIC: B.A., Pontifical College; B.C. in William and Mary College; LL.M., Yale University; Professor of Law
- CHARLOTTE BARTZACK: B.S., M.S., Ph.D., Wayne State University; Adjunct Assistant Professor of Medical Education
- BASSAM N. BASHOUR: P.C.B., School of Science, Syrian Arab Republic; Damascus University; Clinical Assistant Professor of Pathology
- HAROLD A. BASILIUS: B.A., Concordia College; B.D., Concordia Theological Seminary; A.M., Ph.D., Ohio State University; Professor Emeritus of German
- SIDNEY BASKIN: B.S., Wayne State University; M.D., University of Michigan; Clinical Instructor in Internal Medicine
- ALAN R. BASS: B.A., Washington University; M.A., Ph.D., University of Illinois at Urbana; Professor of Psychology
- FERNANDE BASSAN: Licence, Doctorat es Lettres, Université de Paris; Professor of French
- JOHN E. BASSETT: B.A., M.A., Ohio Wesleyan University; Ph.D., University of Rochester; Assistant Professor of English
- JOSEPH S. BASSETT: M.D., Wayne State University; Clinical Assistant Professor of Surgery
- BERNARD BAST: B.A., St. Mary Seminary; M.A., Michigan State University; Ph.D., University of Michigan; Associate Professor of Neurology
- THOMAS M. BATCHELOR: B.S., M.S., M.D., Wayne State University; Clinical Assistant Professor of Internal Medicine and Adjunct Associate Professor of Community Medicine
- GAYLORD S. BATES: A.B., Hiram College; M.D., Harvard University; Clinical Associate Professor of Surgery
- WILLARD M. BATESON: B.S., Wayne State University; M.A., Ph.D., University of Michigan; Professor of Education
- JOHN M. BATTLE: B.S., University of Detroit; M.D., Wayne State University; Clinical Assistant Professor of Family Medicine
- RAYMOND B. BAUER: B.S., Wesleyan University; M.D., Marquette University; Professor of Neurology
- THOMAS J. BAULD III: B.S.E.E., Ph.D., University of Pennsylvania; Adjunct Assistant Professor of Electrical and Computer Engineering
- BILLY BEN BAUMANN: A.B., M.D., Harvard University; Clinical Instructor in Pathology
- CHARLES BAXTER: B.A., Macalaster College; Ph.D., State University of New York at Buffalo; Assistant Professor of English
- SEYMOUR BAXTER: A.B., University of Michigan; M.D., Wayne State University; Clinical Assistant Professor of Psychiatry
- GERALD B. BAYSINGER: M.A., Associate Professor Emeritus of Education
- JOHN A. BEAL, JR.: B.S., Xavier University; Ph.D., University of Cincinnati; Assistant Professor of Anatomy
- JAMES E. BEALL: J. D., University of Detroit; LL.M., Wayne State University; Adjunct Professor of Law
- GEORGE B. BEARD: A.B., Harvard University; M.S., Ph.D., University of Michigan; Director of Physical Science, Chairman and Professor of Physics
- KATHRYN BEATTIE: B.S., Wayne State University; Adjunct Instructor in Medical Technology
- RICHARD C. BECHERER: B.S., Michigan State University; M.B.A., University of Georgia; D.B.A., University of Kentucky; Assistant Professor of Marketing
- ABRAHAM BECKER: B.A., M.D., University of Michigan; Clinical Professor of Internal Medicine
- DAVID H. BECKER: B.S., University of Wisconsin; M.P.A., University of Illinois; Associate Professor of Art
- WILFRED C. BECKER: B.A., M.A., Wayne State University; Professor of Art
- HUGH BECKMAN: B.A., Syracuse University; M.D., Wayne State University; Clinical Associate Professor of Ophthalmology
- ARCHIE W. BEDELL: B.S., Detroit Institute of Technology; M.S., University of Detroit; M.S., Ph.D., M.D., Wayne State University; Clinical Associate Professor of Family Medicine

G. JAN BEEKHUIS: M.B., Ch.B., Pretoria University; Clinical Professor of Otolaryngology

ROBERT C. BEHAN: M.D., Long Island College of Medicine; Clinical Assistant Professor of Psychiatry

DANIEL E. BEHMER: B.A., Notre Dame University; M.A., Ph.D., Western Reserve University; Associate Professor of Education

MAX R. BEITMAN: B.A., M.D., Wayne State University; Clinical Assistant Professor of Internal Medicine

LOUIS BELBY: B.A., Marist College; M.A., Purdue University; Instructor in Spanish

DARWIN J. BELDEN: B.A., Western Michigan University; M.D., Wayne State University; Associate Professor of Family Medicine

WALTER M. BELENKY: A.B., Harvard University; M.D., University of Michigan; Clinical Instructor in Otolaryngology

MICHAEL J. BELL: A.B., St. Joseph's College; M.A., Ph.D., University of Pennsylvania; Assistant Professor of English

ROSEMARY BELL: B.S.N., M.S.N., Wayne State University; Adjunct Assistant Professor of Nursing

HAROLD J. BELLAMY: B.S., University of Michigan; M.U.P., Wayne State University; Adjunct Faculty in Urban Planning

ARNOLD BELLINGER: B.S., Central Michigan University; M.A., Ph.D., Wayne State University; Associate Professor of Nursing

CLAUDE BENAVIDES: M.D., Wayne State University; Clinical Assistant Professor of Surgery

LEONARD F. BENDER: M.D., Jefferson Medical College; M.M.S., University of Minnesota; Chairman and Professor of Physical Medicine and Rehabilitation

DAVID BENJAMINS: A.B., Albion College; M.D., Wayne State University; Assistant Professor of Pediatrics and Neurology

JOYCE A. BENJAMINS: B.A., Albion College; Ph.D., University of Michigan; Assistant Professor of Neurology

CLIFFORD D. BENSON: B.S., University of Wisconsin; M.D., Northwestern University; Clinical Professor of Surgery

WILLIAM G. BENTLEY: B.S., Wayne State University; M.D., Meharry Medical College; Clinical Instructor in Gynecology and Obstetrics

RICHARD C. BERCHOU: B.S. (Pharmacy), Pharm.D., University of Kentucky; Assistant Professor of Clinical Pharmacy

BERNARD A. BERCU: M.D., Washington University; Clinical Associate Professor of Internal Medicine

WILLIAM P. BERES: B.S., Ph.D., Massachusetts Institute of Technology; Professor of Physics

KENNETH L. BERGSMAN: B.S., University of Dayton; M.D., Ohio State University; Assistant Professor (FTA) of Internal Medicine

RAMON BERGUER: M.D., University of Barcelona; Associate Professor of Surgery

RICHARD S. BERK: B.S., Roosevelt University; M.S., University of Minnesota; Ph.D., University of Chicago; Professor of Immunology and Microbiology

ERNEST M. BERKAS: B.A., B.S., M.D., Ph.D., University of Minnesota; Clinical Associate Professor of Surgery

HARRY L. BERKE: B.S., College of New York; M.S., Ph.D., University of Rochester; Associate Professor of Occupational and Environmental Health

LARY R. BERKOWER: B.A., M.D., Wayne State University; Clinical Assistant Professor of Psychiatry

ALLEN BERLIN: B.A., M.D., Wayne State University; Clinical Instructor in Gynecology and Obstetrics

GILBERT M. BERMAN: B.S., University of Michigan; M.D., Northwestern University; Clinical Instructor in Internal Medicine

LEON E. A. BERMAN: B.A., Michigan State University; M.D., Wayne State University; Assistant Professor of Psychiatry

BERNARD BERNBAUM: M.D., Detroit College of Medicine and Surgery; Clinical Associate Professor Emeritus of Pediatrics

MAURICE H. BERNSTEIN: A.B., Ph.D., Washington University; Professor of Anatomy

SAMUEL S. BERNSTEIN: A.B., Johns Hopkins University; M.D., University of Chicago; Clinical Professor of Pediatrics

CONRAD F. BERNYS: A.B., Kalamazoo College; M.D., University of Michigan; Clinical Associate Professor of Surgery

HENRY N. BERSHAS: B.A., Wayne State University; M.A., Ph.D., University of Michigan; Professor of Spanish

GIULIERMO BETANZOS: B.S., Instituto de Ciencias; M.D., University of Mexico; Clinical Instructor in Oncology

RAMON BETANZOS: A.B., Sacred Heart Seminary; S.T.B., Catholic University of America; A.M., Ph.D., University of Michigan; Assistant Professor of Humanities

FREDERIC C. BEUTHIN: B.S. (Pharmacy), M.S., Wayne State University; Ph.D., Purdue University; Associate Professor of Pharmacology

VLADIMIR BEZDEK: Dr. Phil., Charles University, Prague; Associate Professor of German

RATILAL D. BHAKTA: M.B., B.S., University of Baroda, India; Clinical Assistant Professor of Internal Medicine

RAJENDRA KUMAR BHAMA: M.D., University of Bombay; M.S., University of Michigan; Clinical Instructor in Psychiatry

SAVITRI BHAMA: Int. Sc., Jai Hind College; M.B.B.S., University of Bombay; M.S., University of Michigan; Clinical Instructor in Psychiatry

A. T. BHARUCHA-REID: B.S., Iowa State University; Associate Provost of the University and Dean of Graduate Studies; Professor of Mathematics

RODABE BHARUCHA-REID: F.Sc., B.A., Punjab University; M.Sc., Illinois Institute of Technology; Ph.D., Wayne State University; Assistant Professor of Science of Society and Adjunct Assistant Professor of Psychology

RAMAN N. BHAVSAR: M.B.B.S., Gujarat University; Clinical Instructor in Psychiatry

MICHAEL H. BIALIK: B.S., University of Detroit; M.D., Wayne State University; Clinical Instructor in Ophthalmology

FRANK B. BICKNELL: B.A., M.D., University of Michigan; Clinical Professor of Urology

ANIL BIDANI: B.S., J. and K. University, India; M.D., Springer Medical College; Assistant Professor (FTA) of Pediatrics

CHANGIZ Z. BIDARI: M.D., Tehran University, Iran; Assistant Professor (FTA) of Internal Medicine

JOHN G. BIELAWSKI: B.S., B.A., B.M., M.D., Wayne State University; Clinical Associate Professor of Internal Medicine

LEONARD H. BIEMAN: B.S., M.S., Ph.D., Wayne State University; Instructor in Physics

JOHN D. BIES: B.S., M.S., State University College at Buffalo; Ph.D., University of Missouri; Assistant Professor of Education

SUSAN A. BIES: B.B., State University of New York at Buffalo; M.A., Ph.D., Northwestern University; Assistant Professor of Economics

MARY JANE BIGLER: B.F.A., Indiana University; M.A., Wayne State University; Professor of Art

OSCAR BIGMAN: B.S., M.D., Wayne State University; Clinical Instructor in Internal Medicine

RICHARD J. BILAITIS: B.F.A., M.A., Wayne State University; Associate Professor of Art

THOMAS H. BILLINGSLEA: B.S., University of Detroit; M.D., Wayne State University; Clinical Instructor in Internal Medicine

LEN BILLINGSLEY: B.S. (Pharmacy), Pharm.D., Wayne State University; Assistant Professor of Clinical Pharmacy

DAVID E. BINDSCHADLER: B.S., Ohio State University; M.A., Ph.D., Indiana University; Assistant Professor of Mathematics

J. HOWARD BINNS: M.B., Ch.B., Oxford University; Associate Professor of Surgery

PHILIP M. BINNS: M.B., Ch.B., University of Leeds; Acting Chairman and Associate Professor of Otolaryngology

ROBERT E. BIRK: B.A., Colgate University; M.D., University of Rochester; Clinical Assistant Professor of Internal Medicine

DONALD J. BIRMINGHAM: B.S., John Carroll University; M.D., St. Louis University School of Medicine; Chairman and Professor of Dermatology and Syphilology

JOHN R. BIRMINGHAM: B.A., St. Johns College; M.D., Johns Hopkins University; Clinical Instructor in Pediatrics

LEONARD BIRNDORF: B.S., M.D., Wayne State University; Clinical Instructor in Family Medicine

CARTER R. BISHOP: B.S., M.D., University of Cincinnati; Associate Professor of Internal Medicine

GROSVENOR W. BISSELL: M.D., University of Buffalo; Clinical Professor of Internal Medicine

DONALD J. BISSETT: B.A., Wheaton College; B.D., Berkeley Baptist Divinity School; M.A., San Francisco State College; Ph.D., Syracuse University; Professor of Education

- E. DALTON BLACK: M.D., Wayne State University; Clinical Instructor in Pediatrics
- ROBERT W. BLACK: M.D.C.M., McGill University; Clinical Assistant Professor of Internal Medicine
- ALEXANDER BLAIN III: B.A., M.D., Wayne State University; Clinical Assistant Professor of Surgery
- JAMES H. BLAKE: B.A., M.S., Ph.D., Syracuse University; Assistant Professor of Education
- RONALD W. BLATT: B.S., M.D., Wayne State University; Clinical Assistant Professor of Psychiatry
- MARTHA BLAU: B.S., Xavier University; M.S.N., Indiana University; Assistant Professor of Nursing
- ROBERT P. BLAU: B.S., M.D., Wayne State University; Clinical Instructor in Ophthalmology
- CHARLES A. BLESSING: B.S., University of Colorado; M.U.P., Massachusetts Institute of Technology; Adjunct Faculty in Urban Planning
- DAVID L. BLIEVERNICHT: B.S., Eastern Illinois University; M.S., Ph.D., University of Wisconsin at Madison; Associate Professor of Health and Physical Education
- LYNN S. BLISS: B.A., University of Wisconsin; M.A., Columbia University; Ph.D., University of Michigan; Assistant Professor of Speech
- DUANE L. BLOCK: B.S., M.D., University of Wisconsin; Adjunct Assistant Professor of Occupational and Environmental Health
- JAMES B. BLODGETT: A.B., Oberlin College; M.D., Harvard University; Clinical Assistant Professor of Surgery
- WILLIAM H. BLODGETT: A.B., Oberlin College; M.D., Harvard Medical School; Clinical Associate Professor of Orthopedic Surgery
- MARSHALL J. BLONDY: M.D., Wayne State University; Clinical Instructor in Pediatrics
- VICTOR BLOOM: B.S., M.D., University of Michigan; Clinical Associate Professor of Psychiatry
- HERBERT J. BLOOM: D.D.S., M.S., Ph.D., University of Michigan; Adjunct Professor of Speech
- DAVID BLUM: B.A., M.D., Wayne State University; Clinical Instructor in Dermatology and Syphilology
- GEORGE L. BLUM: B.S., Wayne State University; M.D., University of Michigan; Clinical Assistant Professor of Pediatrics
- JON H. BLUM: B.S., M.D., Wayne State University; Clinical Instructor in Dermatology and Syphilology
- AUSMA BLUMENTALS: B.A., M.D., University of Minnesota; Associate Professor (FTA) of Internal Medicine
- FRANK S. BLUMENTHAL: A.B., M.D., University of Michigan; Associate Professor of Physical Medicine and Rehabilitation
- MARVIN BOBES: B.A., Marshall University; Ph.D., Kent State University; Assistant Professor of Science and Technology
- BROOKS F. BOCK: B.S., University of Michigan; M.D., Wayne State University; Assistant Professor of Surgery
- ERIC BOCKSTAEL: Diplome, Universite de Paris; M.A., Columbia University; Assistant Professor of Urban Humanities
- ROBERT K. BOECKMAN, JR.: B.S., Carnegie Institute of Technology; Ph.D., Brandeis University; Associate Professor of Chemistry
- DALE BOESKY: B.A., M.D., University of Michigan; Clinical Assistant Professor of Psychiatry
- RICHARD BOHAN: B.A., M.A.; University of Indiana; Ph.D., University of Florida; Associate Professor of Social Science
- HENRY V. BOHM: B.A., Harvard University; M.S., University of Illinois; Ph.D., Brown University; Professor of Physics
- GEORGE V. BOHMAN: B.A., Monmouth College; M.A., Ph.D.; University of Wisconsin; Professor of Speech
- Z. STEPHEN BOHN: A.B., M.D., University of Michigan; Associate Professor of Neurology
- GERALD W. BOICOURT: B.A., B.S., University of Utah; M.A., M.S., M.Ed., Harvard University; Ed.D., Ph.D., State University of Iowa; Professor of Education
- ELIZABETH A. BOLES: A.B., B.S., Washington University; M.A., Western Michigan University; Associate Professor of Occupational Therapy
- MURRAY BOLES: M.D., University of Western Ontario; Chairman of Radiation Therapy Technology and Clinical Assistant Professor of Radiology
- ROBERT O. BOLLINGER: B.S., M.S., Ph.D., Wayne State University; Assistant Professor of Pediatrics and Assistant Professor of Pharmaceutical Chemistry
- † DAVID F. BOLTZ: B.A., University of Missouri at Rolla; Ph.D., Purdue University; Professor of Chemistry
- WILLIAM A. BOMBERGER: B.S., Physics, Notre Dame University; M.A., Ph.D., Brown University; Assistant Professor of Economics
- MOSTAFA BONAKDAR: M.D., Isgatian Medical School; Clinical Instructor in Gynecology and Obstetrics
- ACHIM BONAWITZ: B.A., McMaster University; M.A., Cornell University; Ph.D., Princeton University; Associate Professor of German
- EARNEST BOOTH: M.D., Southwestern Medical School; University of Texas; Associate Professor of Pathology
- ROBERT E. BOOTH: B.A., Wayne State University; M.S., Ph.D., Western Reserve University; Professor of Education
- WILLIAM M. BORGMAN, JR.: B.S.E., University of Michigan; M.S., Ph.D., University of Chicago; Associate Dean, Office of Academic Administration and Associate Professor of Mathematics
- JURIN BORIBOON: M.D., University of Medicine and Surgery; Hospital; Clinical Instructor in Pediatrics
- PAUL D. BORMAN: B.A., J.D., University of Michigan; LL.M., Yale University; Professor of Law
- MELVIN BORNSTEIN: B.S., M.D., Wayne State University; Clinical Assistant Professor of Psychiatry
- DOV L. BOROS: M.Sc., Ph.D., Hebrew University; Associate Professor of Immunology and Microbiology
- WILLIAM J. BOSSENBROOK: B.A., University of Michigan; M.A., Ph.D., University of Chicago; Professor Emeritus of History
- OSWALD BOSTIC: B.S., M.D., University of British Columbia; Canada; Instructor in Internal Medicine
- MARY JANE B. BOSTICK: B.S., M.Ed., Wayne State University; Professor of Family and Consumer Resources
- WILLIAM BOSTICK: B.A., Carnegie-Mellon University; M.A., Wayne State University; Adjunct Professor of Art History
- ISADORE BOTVINICK: B.A., College of the City of Detroit; M.D., University of Michigan; Associate Professor of Dermatology and Syphilology
- BENT G. BOVING: A.B., Swarthmore College; M.D., Jefferson Medical College; Professor of Gynecology/Obstetrics and Anatomy
- DAVID BOWEN: B.A., Haverford College; Ph.D., University of Pennsylvania; Associate Professor of Science and Technology
- RHODA BOWEN: B.S.N., M.S.N., Wayne State University; Associate Professor of Nursing
- CHARLES R. BOYCE: B.S., Marietta College; M.D., University of Vermont; Professor of Gynecology and Obstetrics
- WILLIAM A. BOYCE: B.A., Atlantic Christian College; M.A., University of Denver; Ph.D., Northwestern University; Assistant Professor of Speech
- JAMES BOYER: B.A., M.Ed., Ph.D., Wayne State University; Associate Professor of Education
- ROY W. BOYER: B.A., Albion College; M.D., Wayne State University; Clinical Instructor in Family Medicine
- ZIGMOND BOYTER: B.A., M.A., Wayne State University; M.A., University of Michigan; Ph.D., Wayne State University; Instructor in Social Science
- RUTH BRACKETT: B.S., State University of Iowa; M.D., University of Iowa; Clinical Assistant Professor of Psychiatry
- HORACE F. BRADFELD: B.S., M.S., University of Michigan; M.D., Wayne State University; Clinical Assistant Professor of Internal Medicine
- GEORGE T. BRADLEY: B.S., M.D., University of Iowa; Clinical Assistant Professor of Surgery
- FOREST E. BRÄMMER: B.S.E.E., North Carolina State College; A.B., Concord College; Ph.D., Case Institute of Technology; Professor of Electrical and Computer Engineering
- LUCY BRAND: B.S.N., M.S.N., Wayne State University; Associate Professor of Nursing
- ADOLFO J. BRANE: M.S., Wayne State University; M.D., University of Buenos Aires; Assistant Professor of Psychiatry

† Deceased

R. F. BRAUNLICH: Vordiplom, University of Marburg; Diplom Ph.D., University of Giessen; Adjunct Professor of Engineering
 CLIAM J. BRAZILL, JR.: B.A., Williams College; M.A., University of Minnesota; A.M., Ph.D., Yale University; Chairman and Professor of History
 N. C. BRECKENRIDGE: B.A., Oberlin College; M.A., Ph.D., University of Michigan; Associate Professor of Mathematics
 KANDER BREDE: A.B., University of Michigan; M.A., Stanford University; Associate Professor Emeritus of English
 HAELE BRENNAN: B.S., University of Detroit; M.D., Loyola University; Professor (FTA) of Internal Medicine
 N. BRENNER: B.A., Johns Hopkins University; Ph.D., Northwestern University; Assistant Professor of Chemistry
 ABETH R. BRENNER: M.D., University of Maryland; Instructor in Gynecology and Obstetrics
 DON L. BRENNER: B.S., Wayne State University; D.O., Chicago College of Osteopathy; Clinical Instructor in Pediatrics
 DOR B. BRENT: B.A., Washington University; M.A., Ph.D., Clark University; Associate Professor of Psychology
 RENCE BRENTON: B.A., University of Pennsylvania; Ph.D., University of Washington; Assistant Professor of Mathematics
 BERT H. BREY: B.A., M.A., University of Utah; Ph.D., Wayne State University; Assistant Professor of Audiology
 RLES F. BRIGGS: B.S., Wayne State University; M.A., Ph.D., University of Michigan; Associate Professor of Mathematics
 CLIAM A. BRIGGS: B.A., M.A., Bucknell University; M.D., University of Pennsylvania; Associate Professor of Internal Medicine
 AHAM BRINCKNER: B.A., M.S.W., Wayne State University; Adjunct Assistant Professor of Community Medicine
 ESTO BRIONES: M.D., University of Santo Tomas; Clinical Assistant Professor of Oncology
 OB E. BRISKI: B.A., M.D., Wayne State University; Clinical Assistant Professor of Pathology
 NARD BROCK: B.A., Illinois State University; M.A., Ph.D., Northwestern University; Professor of Speech
 ALD R. BROCK: B.S., M.S., M.D., Northwestern University; Clinical Assistant Professor of Pathology
 IS BRODSKY: B.S., McGill University; M.D., University of Ottawa; Clinical Instructor in Psychiatry
 REEN O'BRIEN BROHL: B.A., Marygrove College; M.S.W., Wayne State University; Instructor (FTA) in Pediatrics
 HER M. BRONER: B.A., M.A., Wayne State University; Associate Professor of English
 BERT BRONER: B.F.A., M.A., Wayne State University; Professor of Humanistic Studies
 HAN BROOKS: B.S., M.D., Wayne State University; Clinical Professor of Internal Medicine
 UEL C. BROOKS, JR.: B.S., Carnegie Institute of Technology; M.S., Ph.D., University of Wisconsin; Professor of Biochemistry
 NETH N. BROSTROM: B.A., Cornell University; M.A., Ph.D., University of Michigan; Assistant Professor of Russian
 OSEPH BROUGH: A.B., Oberlin College; M.D., Wayne State University; Associate Professor of Pathology
 E. F. BROUS: B.A., M.A., Wayne State University; Instructor in Social Science
 N. M. BROWN: B.S., Morgan State College; M.D., Meharry Medical College; Clinical Assistant Professor of Physical Medicine and Rehabilitation
 HUR BROWN: B.S., University of Massachusetts; M.Ed., Ed.D., Rutgers University; Professor of Education
 E. BROWN: B.A., M.A., Olivet College; M.A., Michigan State University; Ph.D., University of Michigan; Associate Professor of Education
 M. BROWN: B.S., University of Maryland at College Park; M.D., University of Maryland at Baltimore; Professor of Anesthesiology
 EN. R. BROWN: B.S., Wisconsin State University at Superior; M.A., Bowling Green State University; Ph.D., Michigan State University; Assistant Professor of English
 FRANCIS J. BROWN: B.S., M.E., University of Pittsburgh; Ed.D., Wayne State University; Assistant Professor of Business Communication
 FREDDIEMAE E. BROWN: A.M.L.S., University of Michigan; Assistant Professor of Education
 JAMES C. BROWN: B.A., Talladega College; M.D., Meharry Medical College; Clinical Assistant Professor of Internal Medicine
 JOHN REID BROWN: A.B., University of Kentucky; M.D., University of Pennsylvania; M.S., Wayne State University; Clinical Associate Professor of Surgery
 LEON BROWN: B.S.E., University of Michigan; Ph.D., University of Minnesota; Professor of Mathematics
 OSCAR A. BROWN: M.D., Wayne State University; Clinical Assistant Professor of Ophthalmology
 RAY K. BROWN: B.A., M.D., M.S., Ohio State University; Ph.D., Harvard University; Professor and Chairman of Biochemistry
 SAUL BROWN: B.S., M.D., Wayne State University; Clinical Assistant Professor of Pathology
 C. G. BROWNE: B.S., M.A., Northwestern University; Ph.D., Ohio State University; Professor Emeritus of Psychology
 JOHN P. BRUNO: B.S., Villanova University; D.O., Philadelphia College of Osteopathic Medicine; Clinical Instructor in Pediatrics
 HENRY G. BRYAN: B.A., Virginia Military Institute; M.D., University of Virginia; Clinical Instructor in Dermatology and Syphilology
 JOHN B. BRYAN: A.B., M.D., Duke University; Clinical Instructor in Internal Medicine
 FREDERICK W. BRYANT: B.S., M.D., University of Michigan; Clinical Instructor in Ophthalmology
 RAYMOND E. BUCK: B.S., M.D., Wayne State University; Clinical Professor of Psychiatry
 MARK A. BUCKHOLZ: B.A., Wayne State University; M.F.A., Yale University; Instructor in English
 HARILAL D. BUDDHDEV: M.D., G.S., Medical College of Bombay; Clinical Instructor in Pathology
 THOMAS E. BURFORD: B.A., University of Buffalo; M.Ed., State University of New York at Buffalo; Ph.D., Syracuse University; Associate Professor of Education
 ROBERT H. BURGE: A.B., Kalamazoo College; M.D., Wayne State University; Clinical Instructor in Pediatrics
 JOHN H. BURGER: B.A., M.D., Ohio State University; Clinical Instructor in Internal Medicine
 XAVIER P. BURGOYNE: B.S., University of Detroit; M.D., Wayne State University; Instructor in Psychiatry
 ERWIN L. BURKE: M.D., C.M., McGill University; Associate Professor of Internal Medicine
 R. V. BURKS: A.B., Miami University; A.M., Ph.D., University of Chicago; Professor of History
 SHIRLEY H. BURNETTE: B.A., Howard University; M.S.W., Wayne State University; Assistant Professor, School of Social Work
 FREDERIC B. BURNHAM: A.B., Harvard University; B.D., Episcopal Theological School; Ph.D., Johns Hopkins University; Assistant Professor of History
 THOMAS R. BUROKER: B.S., State University of Iowa; D.O., Des Moines College of Osteopathic Medicine; Assistant Professor of Oncology
 JOHN H. BURROWS: B.S., Albion College; M.D., University of Michigan; Clinical Assistant Professor of Oncology
 IRVING F. BURTON: B.A., M.S., Wayne State University; M.D., University of Michigan; Clinical Instructor in Pediatrics
 ROBERT C. BUSHNELL: B.A., Oberlin College; M.A., Ph.D., Princeton University; Associate Professor of Finance and Business Economics
 JOHN D. BUTLER: B.A., Lincoln University; M.D., Meharry Medical College; Clinical Assistant Professor of Dermatology and Syphilology
 CARL F. BUTTS: B.A., Northwestern University; Ph.D., Yale University; Assistant Professor of Sociology
 CHESTER H. CABLE: A.B., Monmouth College; M.A., University of Wisconsin; Ph.D., University of Chicago; Associate Professor Emeritus of English
 JOHN N. CADARET: B.A., University of Michigan; M.A., Wayne University; Professor Emeritus of Management
 PRAVIT CADNAPAPHORNCHAI: M.D., Mahidol University; Assistant Professor of Internal Medicine

- OSVALDO J. CAFFA: M.D., Medical School of Rosario; Clinical Instructor in Ophthalmology
- HARRY CAGLE: M.B.A., Harvard University; Assistant Professor of Accounting
- GEORGE CAIOTTO: Adjunct Assistant Professor of Music
- WALDO L. CAIN: M.D., Meharry Medical College; Clinical Assistant Professor of Surgery
- ROGER CALAM: B.S., M.S., University of Michigan; Ph.D., Wayne State University; Adjunct Assistant Professor of Medical Technology
- N. JOSEPH CALARCO: B.A., M.A., Columbia University; Ph.D., University of Minnesota; Associate Professor of Speech
- WILLIAM H. CALDWELL-JOHNSON: B.S., M.A., Ph.D., Wayne State University; Assistant Professor of Civil Engineering
- DONALD F. CALDWELL: B.S., Purdue University; M.A., George Peabody College; Ph.D., Vanderbilt University; Professor of Psychobiology and Adjunct Professor of Psychology
- ESLY S. CALDWELL: B.S., M.D., Howard University; Assistant Professor of Family Medicine
- JUNE CALDWELL: A.B., University of Kansas; M.S., Ph.D., Wayne State University; Adjunct Instructor in Medical Technology
- DONALD A. CALKINS: B.S., Western Michigan University; M.A., University of Michigan; J.D., Wayne State University; Associate Professor of Criminal Justice
- KENNETH R. CALLAHAN: A.B., Wittenberg College; LL.B., Ohio State University; LL.M., Columbia University; Professor of Law
- ESTHER D. CALLARD: B.S., M.Ed., Wayne State University; Ph.D., University of Michigan; Professor of Family and Consumer Resources
- JOHN S. CAMP: B.A., M.A., Montclair State College; Ph.D., Columbia University; Associate Professor of Education
- J. FRANK CAMPBELL: B.A., Central Michigan University; M.A., Ph.D., University of Michigan; Professor of Education
- SUSAN CANDIELLO: B.S., Pennsylvania State University; M.S., State University of New York; Instructor in Nursing
- JUDITH S. CANFIELD: B.S., University of Florida; M.S., University of Kentucky; Assistant Professor of Physical Therapy
- LOUIS J. CANTONI: B.A., University of California at Berkeley; M.S.W., Ph.D., University of Michigan; Professor of Education
- HERBERT C. CANTOR: B.S., M.D., University of Michigan; Clinical Assistant Professor of Internal Medicine
- LAWRENCE A. CANTOW: B.A., M.D., Indiana University; Clinical Associate Professor of Psychiatry
- EULOGIO CAOLLI: M.D., Masgaysay Memorial Medical Center; Clinical Assistant Professor of Oncology
- CHRIS MARIA CARDARIS: B.A., M.A., Wayne State University; Instructor in English
- SHLOMO CARMI: B.Sc., University of Witwatersrand; M.S., Ph.D., University of Minnesota; Associate Professor of Mechanical Engineering
- WILLIAM S. CARPENTER: A.B., Albion College; M.D., Northwestern University; Clinical Associate Professor of Surgery
- LEE CARRICK: B.A., M.S., M.D., Wayne State University; Clinical Associate Professor of Dermatology and Syphilology
- LEE CARRICK, JR.: B.S., Ph.D., Wayne State University; Assistant Professor of Immunology and Microbiology
- JILL CARRICO: B.S.N., Mercy College; M.S.N., Boston College; Instructor in Nursing
- TERENCE E. CARROLL: B.A., Wayne State University; M.A., Columbia University; Adjunct Assistant Professor of Community Medicine
- GEORGE E. CARTMILL, JR.: B.S., Central State Teachers College; M.S., Columbia University; Adjunct Associate Professor of Community Medicine
- DENISE S. CARTY-BENNIA: B.A., J.D., Columbia University; Associate Professor of Law
- PHILIP N. CASCADE: B.A., M.D., Wayne State University; Clinical Assistant Professor of Radiology
- EMMANUEL R. CASENAS: M.D., University of the East; Instructor in Psychiatry
- GENEVIEVE M. CASEY: B.A., College of St. Catherine; A.M.L.S., University of Michigan; Associate Professor of Education
- RALPH CASH: B.S., Pennsylvania State College; M.D., University of Pennsylvania School of Medicine; Associate Professor of Pediatrics
- COLIN S. CASS: B.A., Hamilton College; M.A., Ph.D., Ohio State University; Assistant Professor of English
- THOMAS Z. CASSEL: B.A., University of Miami; Ph.D., Duquesne University; Assistant Professor of Psychology
- LILLIAN J. CASSIE: B.A., Carleton College; M.A., Ed.D., Wayne State University; Associate Professor of Music
- SAMUEL CASTILLO: M.D., University of Madrid, Spain; Clinical Instructor in Internal Medicine
- MAURICE E. CASTLE: B.S., University of Detroit; M.D., Wayne State University; Clinical Associate Professor of Orthopedic Surgery
- MARY CASTLES: B.S.N., M.S.N., Washington University; Ph.S., St. Louis University; Associate Professor of Nursing
- CORAZON D. CATALAN: A.A., Divine World University; M.D., University of the East; Instructor in Physical Medicine and Rehabilitation
- PAUL A. CATLIN: B.A., Carnegie-Mellon University; M.S., Ph.D., Ohio State University; Assistant Professor of Mathematics
- GERALD F. CAVANAGH: B.S., Case Institute of Technology; M.B.A., Ph.L., M.Ed., St. Louis University; S.T.L., Loyola University-Chicago; D.B.A., Michigan State University; Chairman of Management and Organization Sciences and Associate Professor of Management
- GERALD P. CAVELLIER: B.S., Wayne State University; Instructor in Embalming
- JAN CEJKA: M.S., Institute of Chemical Technology; Ph.D., Czechoslovak Academy of Sciences; Assistant Professor (FTA) of Pediatrics
- FRANK A. CELLAR: B.A., M.D., University of Cincinnati; Clinical Associate Professor of Psychiatry
- LOUISE CENTERS: B.A., Ph.D., University of Southern California; Adjunct Assistant Professor of Psychiatry
- EUGENE J. CETNAR: B.S., M.D., University of Michigan; Clinical Assistant Professor of Family Medicine
- WILLIAM MOO-WON CHAE: M.D., Seoul National University; Clinical Instructor in Radiology
- UVADEE CHAIBONGSAI: M.D., Siriraj Hospital of Bangkok; Clinical Instructor in Radiology
- JULIUS CHAJES: Certificate, Vienna Conservatory; Adjunct Assistant Professor of Music
- NED I. CHALAT: B.A., M.D., University of Michigan; Clinical Associate Professor of Otolaryngology
- KATHERINE M. CHAMBERLAIN: A.B., Ph.D., University of Michigan; Professor Emerita of Physics
- LYDA E. CHAMBERLIN: A.B., M.A., University of Michigan; Associate Professor Emerita of Business Communication
- WALTER J. CHAMBERLIN: B.S., M.A., New York University; Ph.D., University of Illinois; Associate Professor of Finance and Business Economics
- NATHANIEL L. CHAMPLIN: B.F.A., Pratt Institute; M.A., Ed.D., Columbia University; Professor of Education
- ALMA P. CHAND: B.A., University of the Philippines; M.S., George Williams University; Instructor in Community Medicine
- DOUGLAS CHANDLER: B.S., University of Rhode Island; M.D., Tufts University; M.S., Wayne State University; Clinical Assistant Professor of Internal Medicine
- THOMAS A. CHAPEL: B.S., M.D., Wayne State University; Assistant Professor of Dermatology and Syphilology
- BARBARA M. CHAPPER: B.S., University of Detroit; M.D., Wayne State University; Clinical Instructor in Pediatrics
- MARTIN L. CHARLES: B.A., Amherst College; M.D., New York University; Adjunct Assistant Professor of Occupational and Environmental Health
- JACOB L. CHASON: A.B., M.D., University of Michigan; Chairman and Professor of Pathology
- CLEOFE CHAVEZ: A.A., M.D., University of Santo Tomas; Instructor (FTA) in Pediatrics
- WALTER CHAVIN: B.S., College of the City of New York; M.S., Ph.D., New York University; Professor of Biology and Radiobiology
- WILLIAM M. CHAVIS: B.Ph., University of Toledo; M.D., Meharry Medical College; Clinical Assistant Professor of Gynecology and Obstetrics

- AVINASH C. CHAWLA: M.B.B.S., All India Institute of Medical Sciences; Clinical Assistant Professor of Pediatrics
- KENNETH R. CHELST: B.A., Yeshiva University; M.S., New York University; Ph.D., Massachusetts Institute of Technology; Assistant Professor of Industrial Engineering and Operations Research
- CALVIN H. CHEN: B.S., St. John's University, Shanghai; M.D., Pennsylvania Medical School, Shanghai; M.Sc. (Med.), Graduate School of Medicine, College of Medical Evangelists; Clinical Associate Professor of Psychiatry
- HAROLD CHEN: M.D., National Taiwan University; M.S., University of Michigan; Associate Professor of Pediatrics
- JUEI-TENG CHEN: B.S., Tunghai University; M.S., Ph.D., University of Waterloo; Associate Professor of Physics
- KUO-CHUN CHEN: B.S., National Taiwan University; M.S., Virginia Polytechnic Institute and State University; Ph.D., Columbia University; Associate Professor of Biology
- PI-CHAO CHEN: B.A., Tunghai University; M.A., Indiana University; Ph.D., Princeton University; Associate Professor of Political Science
- SHEK CHYEN CHEN: M.D., Tung-Teh Medical College, Shanghai, China; Associate Professor of Radiology
- LLOYD T. CHENEY: B.S., Syracuse University; M.S., Lehigh University; Professor of Civil Engineering
- RICHARD CHENG: B.S., Bradley University; M.S., Ph.D., University of Michigan; Assistant Professor of Mechanical Engineering
- STEPHEN D. CHENNAULT: B.S., Wayne State University; M.A., D.A., University of Michigan; Assistant Professor of English
- BRADLEY J. CHERENZIA: B.S., University of Buffalo; M.D., State University of New York; Clinical Instructor in Radiology
- ALLAN W. CHERNICK: M.D., University of Michigan; Clinical Instructor in Internal Medicine
- ALICE S. CHESTER: M.D., University of Vienna; Clinical Assistant Professor of Psychiatry
- MING-JEH CHIEN: B.S.E.E., National Chiao-Tung University; M.S.E.E., Ph.D., University of California at Berkeley; Assistant Professor of Electrical and Computer Engineering
- JOHN W. CHILDS: B.A., Central Michigan University; M.A., Ph.D., Michigan State University; Professor of Education
- ROBERT E. CHILDS: B.S., J.D., Northwestern University; LL.M., University of Michigan; Professor Emeritus of Law
- KUO-LIANG CHIOU: B.S., Chung-Yuan Christian College; M.A., Stanford University; Ph.D., Harvard University; Assistant Professor of Mathematics
- NELDAGAE CHISA: B.S., M.D., University of Oklahoma; Clinical Assistant Professor of Dermatology and Syphilology
- BERNARD CHODORKOFF: B.S., City College of New York; M.S., Ph.D., University of Wisconsin; M.D., Wayne State University; Associate Professor of Psychiatry and Adjunct Professor of Psychology
- JOAN CHODORKOFF: B.A., Marietta College; M.A., University of Wisconsin; Ph.D., Wayne State University; Adjunct Assistant Professor of Psychology
- BYUNG K. CHOE: B.S., M.S., Kyungpook University; Ph.D., Indiana University; Assistant Professor of Immunology and Microbiology
- CHAIRAT CHOMCHAI: M.D., Chulalongkorn University; Clinical Instructor in Surgery
- TA-HSU CHOU: B.S., Tunghai University; Ph.D., University of Maryland; Assistant Professor of Biochemistry
- PAO-LIU CHOW: M.S., Ph.D., Rensselaer Polytechnic Institute; Associate Professor of Mathematics
- JAMES B. CHRISTENSEN: B.S., M.S., University of Utah; Ph.D., Northwestern University; Director, Social Science Program; Chairman and Professor of Anthropology
- JULIEN M. CHRISTENSEN: B.S., University of Illinois; M.A., Ph.D., Ohio State University; Chairman and Professor of Industrial Engineering and Operations Research
- RAYMOND C. CHRISTENSON: B.A., M.D., University of Iowa; Clinical Assistant Professor of Internal Medicine
- MARA CHRISTIANSEN: B.S., Ohio State University; Adjunct Instructor in Medical Technology
- ADRIAN J. CHRISTIE: M.B., Ch.B., M.D., Welsh National School of Medicine; Clinical Instructor in Pathology
- CLEMENT Y. CHU: M.D., Peking Medical College; Assistant Professor of Internal Medicine
- JOHN A. CHURCHILL: B.S., Trinity College; M.D., University of Pennsylvania; Professor of Neurology
- PAUL C. CHURCHILL: B.S., Ph.D., University of Michigan; Associate Professor of Physiology
- JOSE F. CIRRE: Licenciado en Letras, University of Granada; M.A., Wayne State University; Professor Emeritus of Spanish
- MANUELA M. CIRRE: Licenciatura, Universidad de Madrid; Ph.D., University of Michigan; Professor of Spanish
- ABRAHAM F. CITRON: B.A., M.A., University of Illinois; Ph.D., Columbia University; Professor of Education
- TATJANA CIZEVSKA: A.B., University of Chicago; M.A., Columbia University; Ph.D., Radcliffe-Harvard University; Professor of Russian
- JAMES J. CLAFFEY: B.S., Wayne State University; Instructor in Anesthesia
- I. MUIR CLAPPER: B.A., M.D., M.S., Wayne State University; Professor of Internal Medicine
- KAREN N. CLARK: B.A., M.A., Wayne State University; Assistant Professor of Social Science
- EMMA J. CLARKE: B.A., Florida A & M College; M.A., University of Chicago; Associate Professor, School of Social Work
- MARY-JANE CLARKE: B.A., University of Western Ontario; M.A., Duke University; Assistant Professor of Political Science (Visiting)
- ROBERT B. CLARKE: M.D., University of Arkansas; Clinical Associate Professor of Psychiatry
- WAYNE CLAXTON: B.A., M.A., University of Wisconsin; Professor Emeritus of Art
- VIRGINIA CLELAND: B.S., Monmouth College; M.N., Case Western Reserve University; M.A., University of Chicago; Ph.D., Wayne State University; Professor of Nursing
- LINDA A. CLEMONS: B.A., M.A., University of Michigan; Instructor in Social Science
- BERNYCE CLEVELAND: A.B., Western State Teachers College; M.A., Bread Loaf School of English; Assistant Professor Emerita of English
- WILLIAM V. CLEXTON: M.P.H., University of Michigan; D.V.M., Michigan State University; Adjunct Associate Professor of Community Medicine
- ANDREW R. W. CLIMIE: M.B., Ch.B., M.D., University of Glasgow; M.S., University of Minnesota; Associate Professor of Pathology
- JOHN P. CLUNE: B.S., M.D., Georgetown University; Clinical Assistant Professor of Ophthalmology
- MORREL J. CLUTE: B.A., Central Michigan College; M.Ed., Ed.D., Wayne State University; Professor of Education
- CARMELITA R. CO-CASQUEJO: M.D., University of St. Thomas; Clinical Instructor in Family Medicine
- EUDORO COELLO: M.D., University of Madrid; Clinical Instructor in Oncology
- MARC COGAN: A.B., Ph.D., University of Chicago; Assistant Professor of Humanistic Studies and Assistant Professor of Humanities
- ALAN D. COHEN: B.A., Wayne University; M.D., Ottawa University; Clinical Assistant Professor of Dermatology and Syphilology
- ALBERTO COHEN: B.A., Rui Barbosa College; M.D., University of Brazil; Clinical Assistant Professor of Internal Medicine
- CARL J. COHEN: B.S.C., Assumption University; M.D., University of Toronto; Clinical Instructor of Dermatology and Syphilology
- FLOSSIE COHEN: M.B., Medical College of Cakutta; M.D., University of Buffalo; Professor of Pediatrics
- MARGO P. COHEN: B.S., M.D., University of Michigan; Ph.D., University of Buenos Aires; Associate Professor of Internal Medicine
- SANFORD N. COHEN: A.B., M.D., Johns Hopkins University; Chairman and Professor of Pediatrics
- S. LEONARD COHN: B.A., Wayne State University; M.D., University of Michigan; Clinical Instructor in Gynecology and Obstetrics
- CARL O. COLDITZ: A.B., University of Utah; Ph.D., University of Chicago; Professor Emeritus of German
- CELESTE COLE: Assistant Professor of Music
- E. PHILIP COLE: B.S. (Pharmacy), M.S., Wayne State University; Adjunct Instructor in Hospital Pharmacy

- RICHARD M. COLE: A.B., University of New Hampshire; M.A., Ph.D., Northwestern University; Adjunct Associate Professor of Speech
- WYMAN C. COLE: B.S., M.D., Wayne State University; Clinical Instructor in Pediatrics
- GEORGE H. COLEMAN: B.S., Greenville College; M.S., Ph.D., University of Illinois; Professor Emeritus of Chemistry
- THOMAS W. COLEMAN: B.A., University of Michigan; M.Ed., Wayne State University; Ph.D., University of Michigan; Professor of Education
- JUANITA COLLIER: B.A., Spelman College; M.A., Atlanta University; Ph.D., University of Chicago; Professor of Education
- ELIZABETH COLLINS: A.F.A., Colby Junior College; O.T. Certificate, Boston School of Occupational Therapy; B.A., University of Iowa; Acting Chairman and Assistant Professor of Occupational Therapy
- JAMES W. COLLINS: B.S., Wayne State University; M.D., University of Michigan; Clinical Assistant Professor of Pediatrics
- ROBERT COLLINS: B.S., Wayne State University; Adjunct Assistant Professor of Music
- CYNTHIA M. COLVIN: B.A., M.Ed., Ed.D., Wayne State University; Professor of Education
- JULIUS V. COMBS: B.S., M.D., Wayne State University; Instructor in Gynecology and Obstetrics
- RICHARD C. CONNELLY: B.S., M.D., St. Louis University; Clinical Associate Professor of Internal Medicine
- MILDRED M. CONNELLY: A.B., M.A., University of Michigan; Associate Professor Emeritus of English
- BASIL CONSIDINE, JR.: B.S., M.D., University of Michigan; Clinical Assistant Professor of Radiology
- OLGA CONSTANTINE: B.F.A., M.A., Wayne State University; Professor of Art
- DAVID R. COOK: B.S., M.A., Ph.D., University of Michigan; Professor of Biology
- FRED S. COOK: B.S., Ohio Northern University; M.A., Ph.D., University of Michigan; Professor of Education
- EDMOND L. COOPER: M.D., University of Michigan; Clinical Professor of Ophthalmology
- MARGARET H. COOPER: A.B., Drury College; M.S., Ph.D., Saint Louis University; Assistant Professor of Anatomy
- RALPH R. COOPER: B.A., M.D., University of Michigan; Clinical Assistant Professor of Internal Medicine
- ROBERT S. COPPER: B.S., M.D., Wayne State University; Clinical Instructor in Pediatrics
- MAX CORAL: B.A., College of the City of Detroit; Ph.D., University of Chicago; Associate Dean Emeritus and Professor Emeritus of Monteth College
- DAVID P. CORBETT: B.S., University of Michigan; M.D., Wayne State University; Clinical Assistant Professor of Radiology
- CLARK L. COREY: B.S., M.S., Ph.D., University of Michigan; Professor of Chemical and Metallurgical Engineering
- DOLORES CORKALO: B.A., M.S.W., Wayne State University; Assistant Professor, School of Social Work
- FRANK J. CORLISS, JR.: A.B., Harvard College; M.A., Ph.D., University of Michigan; Assistant Professor of Russian
- DOUGLAS CORNELSON: B.M., M.M., University of Cincinnati; Adjunct Assistant Professor of Music
- GHEORGE CORONDAN: M.D., University of Cluj; Instructor in Orthopedic Surgery
- JUAN J. CORREA: M.D., Universidad Javeriana Medical School; Assistant Professor of Oncology
- RUPERT L. CORTRIGHT: A.B., Albion College; M.A., Ph.D., University of Michigan; Professor Emeritus of Speech
- JOHN W. COSGRIFF, JR.: B.A., University of Arizona; M.A., Ph.D., University of California; Vice Chairman and Associate Professor of Biology
- RALPH J. COSKEY: B.A., University of Michigan; M.D., Wayne University; Clinical Associate Professor of Dermatology and Syphilology
- SHIRLEY COSPER: B.S.N., M.S.N., Wayne State University; Assistant Professor of Nursing
- MARY ROSE COSTELLO: B.S., Washington University; M.A., Ph.D., Northwestern University; Clinical Associate Professor of Audiology
- CHARLENE COTTING: B.S.N., Boston College; M.S.N., Wayne State University; Instructor in Nursing
- ROBERTA F. COTTMAN: B.S., Bennett College; M.A., New York University; Chairman and Assistant Professor of Physical Therapy
- CHARLES J. COURVILLE: A.B., Wayne State University; M.D., University of Michigan; Clinical Associate Professor of Dermatology and Syphilology
- JACQUES J. COUSIN: A.B., M.A., Brown University; M.S., Columbia University; Adjunct Associate Professor of Community Medicine
- ARNOLD COVEN: B.A., Brooklyn College; M.A., New York University; Ed.D., University of Arizona; Assistant Professor of Education
- MILTON COVENSKY: B.A., M.A., Wayne State University; Ph.D., University of Michigan; Professor of History
- JAMES COWAN: B.S., California Institute of Technology; A.B., M.A., University of California at Berkeley; Assistant Professor of Humanistic Studies
- JOHN W. COWDEN: B.A., Michigan State University; M.D., University of Michigan; Assistant Professor of Ophthalmology
- DOUGLAS E. COX: B.A., Houghton College; M.D., State University of New York; Clinical Assistant Professor of Pediatrics
- ROBERT D. COYE: B.S., Williams College; M.D., Rochester University; Dean of the School of Medicine and Professor of Pathology
- JAMES E. COYLE: B.A., Georgetown University; M.D., University of Michigan; Clinical Associate Professor of Otolaryngology
- SUESETTA CRAIG: B.S., Wayne State University; M.A., New York University; Assistant Professor of Occupational Therapy
- † J. VERNE CRANDALL: M.S., Associate Professor Emeritus of Pharmacy
- LAWRENCE R. CRANE: M.D., Wayne State University; Assistant Professor of Internal Medicine
- ALICE T. CRATHERN: B.A., Mount Holyoke College; M.A., Ph.D., Western Reserve University; Assistant Professor Emerita of English
- C. DELISLE CRAWFORD: Ph.D., New York University; Professor Emeritus of Education
- MARGARET CRAWFORD: B.A., The Queen's University of Belfast; M.A., University of Alberta; Ph.D., University of Michigan; Assistant Professor of Geography
- EUGENE H. CRAWLEY: B.S., M.D., University of Arkansas; Clinical Instructor in Pediatrics
- JOANNE V. CREIGHTON: B.A., University of Wisconsin; M.A.T., Harvard University; Ph.D., University of Michigan; Associate Professor of English
- AVERY CREW: Adjunct Professor of Music
- ETHELENE J. CROCKETT: A.S., Jackson Junior College; M.D., Howard Medical School; Adjunct Assistant Professor of Community Medicine
- PAUL D. CROISSANT: M.D., Hahnemann Medical School; Clinical Instructor in Neurosurgery
- MAURICE CROLL: D.D.S., D.D.Sc., University of Michigan; B.A., B.M., M.D., Wayne State University; Clinical Professor of Ophthalmology
- ROBERT J. CROSSEN: B.S., M.D., Indiana University; Clinical Associate Professor of Ophthalmology
- WILLIAM J. CROSLAND: B.A., Trinity College; M.A., Ph.D., University of Illinois; Assistant Professor of Anatomy
- ELLEANOR CROWN: B.S., M.S., University of South Carolina; M.A., Ph.D., University of Michigan; Assistant Professor of Near East and Asian Studies
- ROBERT B. CUBBERLY: A.B., Johns Hopkins University; M.D., Cornell University; Clinical Instructor in Internal Medicine
- ANGELO M. CUCCI: B.S., M.S., Ed.D., University of Illinois; Professor of Music
- FRANK CULLIS: M.B., Ch.B., Birmingham University; Clinical Associate Professor of Physical Medicine and Rehabilitation
- JAMES W. CULVER: B.S. (Pharmacy), Pharm.D., Wayne State University; Adjunct Assistant Professor of Clinical Pharmacy
- FRED J. CUMMINGS: B.A., Willamette University; M.A., Harvard University; Ph.D., University of Chicago; Adjunct Professor of Art History

† Deceased

THOMAS J. CURTIN: B.S., Manhattan College; M.S., University of Florida; Ph.D., University of Maryland; Adjunct Professor of Biology

WILLIAM P. CURTISS: M.D., University of Oklahoma; Clinical Instructor in Internal Medicine

BARBARA CUSHING: A.B., Asbury College; B.S., University of North Dakota; M.D., Wayne State University; Assistant Professor (FTA) of Pediatrics

FREDERICK CUSHING: B.S., University of Detroit; M.D., Wayne State University; Clinical Assistant Professor of Radiology

RALPH D. CUSHING: B.S., University of North Dakota; M.D., Wayne State University; Assistant Professor of Internal Medicine

EDWARD L. CUSHMAN: B.A., University of Michigan; Clarence Hillberry University Professor; Professor of Political Science

ALEX CUSHNIER, JR.: B.A., Wayne State University; Instructor in Urban Humanities

ROBERT M. CUTLER: M.D., University of Michigan; Clinical Assistant Professor of Internal Medicine

DANICA DABICH: B.S., University of Michigan; M.S., Ohio State University; Ph.D., University of Illinois; Associate Professor of Biochemistry

ERHARD DABRINGHAUS: B.A., Miami University; Ohio; M.A., Wayne State University; Ph.D., University of Michigan; Assistant Professor of German

HORST S. DAEMMRICH: B.A., M.A., Wayne State University; Ph.D., University of Chicago; Professor of German

MICHAEL A. DAHER: B.A., University of Notre Dame; M.A., University of Michigan; Ph.D., Wayne State University; Instructor in Urban Humanities

ANDREW W. DAHL: B.S., Clark University; M.P.A., Cornell University; Sc.D., Johns Hopkins University; Adjunct Assistant Professor of Community Medicine

DORIS E. DAHLSTROM: B.S., M.D., University of Minnesota; Clinical Instructor in Family Medicine

JACQUELINE A. DAILEY: B.S., University of Michigan; M.S., Pennsylvania State University; Assistant Professor of Health and Physical Education

ADNAN DAJANI: B.S., M.D., American University of Beirut; M.S., University of North Carolina; Professor of Pediatrics

GIANFRANCO DAL SANTO: M.D., University of Padova Medical School; Professor of Anesthesiology

GUY C. DALTO: B.A., Rutgers University; M.A., Ph.D., University of Chicago; Assistant Professor of Sociology

MIRIAM S. DALY: B.A., Goucher College; M.D., University of Maryland; Clinical Instructor in Family Medicine

GEORGE E. DAMBACH: B.S., Ph.D., Ohio State University; Associate Professor of Pharmacology

ROBERT D. DANFORTH: B.A., Bowling Green State University; M.D., Wayne State University; Clinical Instructor in Family Medicine

JACOB DANIAL: M.B.B.S., Christian Medical College; Instructor in Neurology

ROBERT DANIELS: B.A., M.S.W., Wayne State University; Assistant Professor, School of Social Work

ISTVAN J. DANOSI: Master's Diploma, Hungarian Sports Academy; Associate Professor of Physical Education

BRUCE L. DANTO: B.A., M.S.W., M.D., Wayne State University; Clinical Associate Professor of Psychiatry

LINDA L. DARGA: B.A., M.A., Ph.D., Wayne State University; Instructor in Anthropology

WILLIAM R. DARMODY: B.S., M.D., Wayne State University; Associate Professor of Neurosurgery

GOPAL DAS: I.Sc., Patna University; M.B.B.S., Prince of Wales Medical College; Associate Professor (FTA) of Internal Medicine

BERNARD DASH: B.S., Ursinus College; D.O., College of Osteopathic Medicine and Surgery, Des Moines; Clinical Instructor in Family Medicine

TPAN K. DATTA: B.E., Graduate Diploma in Town and Regional Planning, University of Calcutta; M.S., Wayne State University; Ph.D., Michigan State University; Associate Professor of Civil Engineering

ROBERT C. DAUFFENBACH: B.A., M.A., Wichita State University; Ph.D., University of Illinois at Champaign-Urbana; Assistant Professor of Economics

RAYMOND J. DAUPHINAIS: B.S. (Pharmacy), University of Illinois; J.D., University of Florida; LL.M., New York University; Professor of Pharmaceutical Administration

CAROL DAVEY: A.B., Wayne State University; M.S., Cornell University; Assistant Professor of Family and Consumer Resources

GLENN S. DAVIDSON: B.S., Ohio State University; Ph.D., State University of New York at Stony Brook; Assistant Professor of Psychology

HAROLD H. DAVIDSON: B.S., Yale University; M.D., Long Island College of Medicine; Clinical Associate Professor of Psychiatry

KENNETH S. DAVIDSON: B.A., Yale University; M.A., Ph.D., University of Michigan; Associate Professor of Psychology

ALAN R. DAVIES: B.Sc., M.Sc., University College, London; Adjunct Assistant Professor of Engineering

GERALD T. DAVIES: A.B., M.D., University of Michigan; Clinical Assistant Professor of Ophthalmology

WINDSOR S. DAVIES: M.D., University of Michigan; Clinical Professor of Ophthalmology

CHARLES DAVIS: B.A., M.A., Wayne State University; Ph.D., University of Michigan; Assistant Professor of Social Science

JEROME D. DAVIS: A.B., Harvard College; M.D., University of Virginia; Clinical Assistant Professor of Ophthalmology

ELIZABETH J. DAWE: B.S., D.V.M., Michigan State University; Adjunct Assistant Professor of Comparative Medicine and Instructor in Surgery

A. JACKSON DAY: A.B., Harvard College; M.D., University of Michigan; Clinical Professor of Orthopedic Surgery

JAMES A. DAY: B.S., M.S., Wayne State University; Assistant Professor of Engineering Technology

JAY C. DAY: M.D., Harvard University; Clinical Associate Professor of Surgery

JOYCE DAY: B.S., M.S., Columbia University; Professor of Nursing

DALPAT K. DAYA: B.A., University of Witwatersrand; Diploma in Social Service Administration, Tata Institute of Social Sciences; M.S.W., Wayne State University; Assistant Professor, School of Social Work

ADRIAN M. DE GRAAF: M.S., Technische Hogeschool; Ph.D., Eidenossische Technische Hochschule; Professor of Physics

JAIME DE LA ISLA: B.A., University of Houston; M.S.W., University of Michigan; Assistant Professor of Chicano-Boricua Studies

GEORGE A. DEAN: B.A., M.D., Wayne State University; Clinical Instructor in Family Medicine

CASSIUS A. DEFLOON: B.A., Colorado College; M.D., Tufts University; Assistant Professor of Psychiatry

DOMINIC L. DEGIUSTI: B.S., College of St. Thomas; M.S., University of Michigan; Ph.D., University of Wisconsin; Professor of Biology and Professor of Parasitology in Comparative Medicine

MURRAY A. DEIGHTON: B.A., M.D., Wayne State University; Clinical Assistant Professor of Family Medicine

BETTY J. DELAWARENCE: B.S., Hood College; M.D., Hahnemann Medical College; Clinical Instructor in Family Medicine

MARK F. DELEONARD: B.M., University of Illinois; M.Ed., Wayne State University; Professor of Music

JAAP B. DELEVIE: M.D., University of Amsterdam; Clinical Instructor in Ophthalmology

PAUL A. DELGADO: B.A., University of Colorado; M.S., Colorado State University; M.S.W., University of Michigan; Assistant Professor, School of Social Work

ROGER A. DEMONT: B.S., Appalachian State Teachers College; M.Ed., University of Florida; Ed.D., University of Tennessee; Professor of Education

HARRY H. DENMAN: B.S.E.E., Drexel Institute of Technology; M.S., Ph.D., University of Cincinnati; Professor of Physics

JOHN W. DERR: A.B., Ohio Wesleyan University; M.D., Case Western Reserve University; Clinical Assistant Professor of Surgery

ASHOKKUMAR J. DESAI: M.D., Shah Medical College of India; Instructor in Radiology

SUDHIR G. DESAI: I.Sc., Karnatak College; M.B.B.S., Grant Medical College; Assistant Professor (FTA) of Internal Medicine

CARL N. DESILVA: B.S., M.S., Columbia University; Ph.D., University of Michigan; Professor of Mechanical Engineering

- RICHARD E. DESIMONE: A.B., Cornell University; Ph.D., University of Illinois; Assistant Professor of Chemistry
- BRUCE E. DESPELDER: B.A., Wayne State University; M.B.A., University of Michigan; Ph.D., Ohio State University; Professor of Management
- BURLEIGH E. DETAR: A.B., M.D., University of Kansas; Assistant Professor (FTA) of Internal Medicine
- PAMELA G. DEWEESE: B.A., Washington College; M.A., Ph.D., Purdue University; Assistant Professor of Social Science
- SHARON L. DEWEY: B.S., Western Michigan University; M.A., Texas Women's University; Assistant Professor of Health and Physical Education
- JOHN J. DEWITT: B.A., Sacred Heart Seminary; M.Ed., Ed.D., Boston University; Professor of Education
- WILLIAM J. DIBATTISTA: B.S., University of Rhode Island; Ph.D., Ohio State University; Instructor in Pathology
- JAMES C. DICK: B.A., Swarthmore College; Ph.D., University of North Carolina; Assistant Professor of Political Science
- ROBERT C. DICKENMAN: B.S., University of Nebraska; M.S., Wayne State University; M.D., Creighton University; Clinical Assistant Professor of Pathology
- LESTER E. DICKINSON: B.A., University of Minnesota; Professor Emeritus of English
- VIVIAN DICKS: B.A., Wayne State University; M.A., Ph.D., Ohio State University; Instructor in Speech
- MARGARET R. DIETZE: B.S., M.D., University of Pittsburgh; Clinical Instructor in Pediatrics
- WALTER DIGUILIO: B.S., University of Detroit; M.D., St. Louis University; Clinical Assistant Professor of Internal Medicine
- SIDNEY DILLICK: B.A., M.A., University of Toronto; M.S.W., University of Pittsburgh; Ph.D., University of Toronto; Dean and Professor, School of Social Work
- PANFILO C. DILORETO: B.S., Wayne State University; M.D., University of Michigan; Clinical Instructor in Gynecology and Obstetrics
- MICHAEL J. DIMINO: B.S., Villanova University; Ph.D., Rutgers University; Assistant Professor (FTA) of Physiology
- ANDREA DITOMMASO: B.A., Ph.D., Johns Hopkins University; Associate Professor of Italian
- SHIRLEY I. DOBIE: B.A., M.A., Ph.D., Wayne State University; Adjunct Associate Professor of Psychology
- NANCY DOBSON: B.S.N., M.S.N., Wayne State University; Assistant Professor of Nursing
- ALLAN E. DOBZYNIAK: B.A., Western Reserve University; M.D., Wayne State University; Clinical Instructor in Internal Medicine
- MARYLIN DODD: B.S., M.N., University of Washington; Instructor in Nursing
- EDMUND G. DOHERTY: A.B., Boston College; Ph.D., University of Nevada; Associate Professor of Sociology
- VICTOR C. DOHERTY: B.S., M.B.A., University of Detroit; Ph.D., Michigan State University; Dean of the School of Business Administration and Professor of Management
- FRED E. DOHRS: B.S., M.A., Ph.D., Northwestern University; Professor of Geography
- JOHN F. DOLAN: B.A., J.D., University of Illinois; Associate Professor of Law
- SIMON DOLIN: B.S., University of Lille; M.D., University of Lithuania; Clinical Assistant Professor of Radiology
- ALINA M. DOMANOWSKI: R.N., Polish National School of Nursing; M.D., Warsaw Medical Academy; Instructor in Pathology
- EDWARD F. DOMINO: B.S., M.S., M.D., University of Illinois; Visiting Professor of Pharmacology
- JOHN C. DONAHER, JR.: B.S., University of Notre Dame; M.P.H., University of Pittsburgh; Adjunct Associate Professor of Community Medicine
- J. BRUCE DONALDSON: LL.B., University of Detroit; LL.M., New York University; Adjunct Professor of Law
- ALAN K. DONE: B.A., M.D., University of Utah; Professor of Pediatrics
- HAROLD G. DONNELLY: B.S., Wayne State University; M.S.E., Ph.D., University of Michigan; Professor of Chemical and Metallurgical Engineering
- CHARLES DORANDO: B.S., Adelphi College; Adjunct Instructor in Physical Therapy
- WILLIAM E. DORENBUSCH: B.S., Ph.D., University of Notre Dame; Associate Professor of Physics
- JACK DORMAN: M.D., Indiana University; Clinical Assistant Professor of Psychiatry
- MARILYNN S. DOSCHER: B.A., Cornell University; Ph.D., University of Washington; Associate Professor of Biochemistry
- MURRAY A. DOUGLAS: B.A., Wayne State University; M.A., Ph.D., Ohio State University; Professor of Education
- ROBERT C. DOUGLASS, JR.: B.S., University of Toledo; M.D., University of Maryland; M.S., Wayne State University; Clinical Assistant Professor of Internal Medicine
- BENJAMIN W. DOVITZ: B.A., M.B., M.D., Wayne State University; Clinical Assistant Professor of Urology
- JAMES J. DOWD: B.S., Saint Peter's College; M.A., University of Maryland; Ph.D., University of Southern California; Assistant Professor of Sociology
- SUSAN S. DOWLING: B.A., M.A., Ph.D., Indiana University; Assistant Professor of Speech
- EFFIE M. DOWNER: M.A., Professor Emerita of Education
- THOMAS F. DOWNHAM II: B.S., M.D., University of Michigan; Assistant Professor of Dermatology and Syphilology
- GEORGE L. DOWNING: B.A., Michigan State University; J.D., Wayne State University; Adjunct Professor of Law
- LINDA DOWNS: B.A., Wayne State University; M.A., University of Michigan; Adjunct Professor of Art History
- GUY T. DOYAL: B.S., Butler University; M.A., Ph.D., University of Iowa; Associate Professor of Education
- NORMA DRESCH: B.S., Quincy College; M.S., Wayne State University; Assistant Professor of Medical Technology
- DOROTHY DREYER: B.A., M.A., Kent State University; Ph.D., Michigan State University; Assistant Professor of Speech
- EGBERT G. DRISCOLL, JR.: B.A., Oberlin College; M.S., University of Nebraska; Ph.D., University of Michigan; Professor of Geology
- DANIEL DRUCKER: B.S., Massachusetts Institute of Technology; M.A., Ph.D., University of California; Assistant Professor of Mathematics
- JOHN K. DRUMM: B.S., Niagara University; M.D., State University of New York; Clinical Instructor in Radiology
- JOHN S. DRYPS: B.S. (Pharmacy), Wayne State University; Adjunct Instructor in Hospital Pharmacy
- CHESTER T. DUDA: B.S., University of Alberta; M.S., McGill University; Ph.D., Purdue University; Assistant Professor of Biology
- THOMAS J. LUGGAN: A.B., A.M., St. Louis University; Ph.D., University of Illinois; Associate Professor of Sociology
- DAVID DULL: B.S., Pennsylvania State University; Ph.D., Stanford University; Instructor in Science and Technology
- JOSEPH C. DUNBAR, JR.: B.S., Alcorn College; M.S., Texas Southern University; Ph.D., Wayne State University; Assistant Professor of Physiology
- TODD DUNCAN: B.A., M.A., University of Louisville; Ph.D., Harvard University; Assistant Professor of English
- GERALD L. DUNIFER: B.S., Walla Walla College; M.S., Ph.D., University of California; Assistant Professor of Physics
- MELVIN F. W. DUNKER: Ph.G., B.S. (Pharmacy), M.S., Ph.D., University of Maryland; Professor of Pharmaceutical Chemistry
- YOLANDA DURLEY: B.S. (Pharmacy), Detroit Institute of Technology; Pharm.D., University of Michigan; Assistant Professor of Clinical Pharmacy
- THOMAS F. DUTCHER: B.A., B.S., M.D., University of Chicago; Clinical Assistant Professor of Pathology
- SARADINDU DUTTA: B.S., Calcutta University; M.S., University of Wisconsin; Ph.D., Ohio State University; Professor of Pharmacology
- HOWARD J. DWORKIN: B.S., Worcester Polytechnic Institute; M.D., Albany Medical College; M.S., University of Michigan; Clinical Assistant Professor of Internal Medicine
- MARIE DRAPER DYKES: B.S.N., Wayne State University; M.S., University of California; Assistant Provost for Academic Programs and Assistant Professor of Nursing
- PAUL J. DZUL: M.D., University of Innsbruck; Clinical Assistant Professor of Otolaryngology
- EMMETT E. EAGAN: B.A., J.D., University of Michigan; Adjunct Professor of Law
- CLARK EASTHAM: B.M., Detroit Institute of Musical Arts; Adjunct Assistant Professor of Music
- JAY W. EASTMAN: B.S., Michigan State University; M.D., Wayne State University; Instructor (FTA) in Pediatrics

- DARRELL D. EBBING: B.S., Bradley University; Ph.D., Indiana University; Professor of Chemistry
- CHARLES M. EBNER: B.S., University of Notre Dame; M.D., Wayne State University; Clinical Instructor in Internal Medicine
- ARTHUR W. ECKHOUS: B.S., M.D., Tulane University; Clinical Assistant Professor of Gynecology and Obstetrics
- PETER S. ECKLUND: B.S., M.S., Ph.D., Wayne State University; Assistant Professor of Pediatrics
- LAWRENCE B. EDELMAN: B.S., M.D., Wayne State University; Clinical Instructor in Ophthalmology
- MARION EDMAN: Ph.D., Professor Emeritus of Education
- ALFRED G. EDWARD: B.S., D.V.M., Colorado State University; Adjunct Professor of Biology and Professor of Comparative Medicine
- C. RUPERT EDWARDS: M.D., Indiana University; Clinical Associate Professor of Internal Medicine
- HOMER F. EDWARDS: A.B., M.A., Ph.D., Emory University; Associate Professor of Humanities
- ALEXANDER EFTHIM: B.A., Washington University; M.A., Columbia University; Associate Professor, School of Social Work
- JOHN D. EGNER: B.F.A., Philadelphia Museum College of Arts; M.F.A., Yale University; Associate Professor of Art
- ALFRED EICHENHOLZ: M.D., Ludwig Maximilian University; M.S., University of Minnesota; Professor of Internal Medicine
- FRANCO EINAUDI: B.S., Politecnico di Turin; M.S., Ph.D., Cornell University; Adjunct Associate Professor of Mechanical Engineering
- ARTHUR B. EISENBREY: M.D., Western Reserve University School of Medicine; Assistant Professor of Neurosurgery
- BERTRAM J. EISENSTADT: B.S., City College of New York; M.S., Brown University; Ph.D., University of Michigan; Chairman and Professor of Mathematics
- BERNARD EISENSTEIN: B.A., M.D., University of British Columbia; Clinical Instructor in Surgery
- BETH ANN EISLER: A.B., J.D., George Washington University; Associate Professor of Law
- MERLIN E. EKSTROM: D.V.M., Oklahoma State University; M.S., University of Minnesota; Associate Professor of Comparative Medicine
- M. A. B. EL-GOTHAMY: M.B., Ch.B., University of Cairo; Instructor in Otolaryngology
- CHARLES D. ELDER: B.A., University of Missouri; Ph.D., Northwestern University; Associate Professor of Political Science
- FRANCES ELDIS: B.S., M.S., Ph.D., Wayne State University; Instructor (FTA) in Audiology
- BETTYE S. ELKINS: B.J., University of Texas; J.D., University of Michigan; Adjunct Assistant Professor of Community Medicine
- ELMER P. ELLIAS: M.D., Wayne State University; Clinical Assistant Professor of Surgery
- DONALD N. ELLIOTT: B.S., M.S., Ph.D., Purdue University; Professor of Psychology
- SHARON L. ELLIOTT: B.S., M.Ed., Ed.D., Wayne State University; Assistant Professor of Education
- RUTH E. ELLSWORTH: B.A., Western Michigan University; M.A., Columbia University; Ph.D., Northwestern University; Professor of Education
- ABRAHAM ELSON: B.S., M.D., Wayne State University; Clinical Associate Professor of Psychiatry
- RICHARD F. ELTON: Assoc. Sci., Flint Junior College; M.S., M.D., Wayne State University; Clinical Assistant Professor of Dermatology and Syphilology
- JOHN F. ENDICOTT: B.A., Reed College; Ph.D., Johns Hopkins University; Professor of Chemistry
- GERHARD C. ENDLER: B.S., University of Graz; M.D., University of Vienna, Austria; Associate Professor of Anesthesiology
- KRISTA L. ENGLISH: B.A., M.A., Michigan State University; Instructor in Communications Skills
- EMANUEL EPSTEIN: B.S., M.S., Ph.D., Wayne State University; Clinical Assistant Professor of Pathology
- ELDON ERICKSON: B.S., M.D., M.S., University of Minnesota; Clinical Instructor in Internal Medicine
- ROBERT F. ERLANDSON: B.S.E.E., Wayne State University; Ph.D., Case Western Reserve University; Assistant Professor of Electrical and Computer Engineering
- REGINALD H. ERNST: B.S., University of Michigan; M.D., Wayne State University; Clinical Assistant Professor of Internal Medicine
- CALVIN ERVIN: B.A., Temple University; M.D., Howard University; Clinical Assistant Professor of Radiology
- J. ROSS ESHLEMAN: B.A., Manchester College; M.S., Ph.D., Ohio State University; Chairman and Professor of Sociology
- MARCELO B. ESPIRITU: M.D., University of the Philippines; Assistant Professor of Otolaryngology
- NORMA C. ESPIRITU: M.D., University of the Philippines; Clinical Instructor in Pediatrics
- EDWARD S. ESSNER: B.S., Long Island University; Ph.D., University of Pennsylvania; Professor of Ophthalmology
- FRANK J. ESTVAN: B.S., Buffalo State Teachers College; M.A., Columbia University; Ph.D., University of Chicago; Professor of Education
- MILDRED F. ETTER: B.S., M.A., Wayne State University; Adjunct Assistant Professor of Occupational Therapy
- DAVID R. EVANS: B.S., Notre Dame University; Ph.D., Wayne State University; Assistant Professor of Biochemistry
- GEORGE C. EVANS: B.S., Hampton Institute; M.D., Howard University; Clinical Assistant Professor of Radiology
- GOMER P. EVANS: B.S., M.D., University of Michigan; Clinical Instructor in Ophthalmology
- HARRY B. EVANS: B.A., Yale University; Ph.D., University of North Carolina; Assistant Professor of Greek and Latin
- T. N. EVANS: B.A., Baylor University; M.D., Vanderbilt University; Chairman and Professor of Gynecology and Obstetrics
- WALTER L. EVERETT: B.A., M.D., Wayne State University; Instructor in Orthopedic Surgery
- CHARLES H. EWING: M.B., M.D., University of Toronto; Clinical Instructor in Internal Medicine
- FRANK P. FACIONE: B.S. (Pharmacy), M.S., Wayne State University; Instructor in Pharmaceutical Administration
- MICHAEL FACKTOR: B.S., M.D., University of Michigan; Assistant Professor (FTA) of Pediatrics
- I. DONALD FAGIN: B.S., M.D., New York University; Clinical Associate Professor of Internal Medicine
- DAVID FAIGENBAUM: B.A., M.A., Wayne State University; Ph.D., University of Michigan; Associate Professor (FTA) of Pediatrics and Adjunct Associate Professor of Psychology
- JEAN E. FAIR: B.A., University of Illinois; M.A., Ph.D., University of Chicago; Professor of Education
- MERVYN FALK: B.A., West Virginia University; M.A., Ohio University; Ph.D., Wayne State University; Associate Professor of Speech
- DAVID I. FAND: B.S.S., City College of New York; M.A., Ph.D., University of Chicago; Professor of Economics
- JAMES J. FAREMOUTH: B.S., M.D., Wayne State University; Clinical Instructor in Orthopedic Surgery
- CHERRIE ANN FARNETTE: B.S., M.A., Peabody College; Instructor in Education
- ZIA FAROOKI: M.D., King Edward Medical School; Assistant Professor (FTA) of Pediatrics
- HENRYK FAST: Magister of Phil., University of Wroclaw; Ph.D., Mathematics Institute of Polish Academy; Associate Professor of Mathematics
- UWE K. FAULHABER: B.A., Oberlin College; M.A., Ph.D., University of Southern California; Assistant Professor of German
- ROLAND C. FAUNCE: Ph.D., Professor Emeritus of Education
- JOSEPH FAVA: Adjunct Professor of Music
- LAWRENCE D. FAVRO: A.B., A.M., Ph.D., Harvard University; Professor of Physics
- MICHAEL FEDERMAN: B.A., M.D., Wayne State University; Clinical Assistant Professor of Internal Medicine
- SUZANNE FEETHAM: B.S.N., University of Michigan; M.S.N., Wayne State University; Assistant Professor of Nursing
- HON. JOHN FEIKENS: B.A., Calvin College; J.D., University of Michigan; Adjunct Professor of Law
- GRETA A. FEIN: B.S., Queens College; M.S., Bank Street College of Education; Ph.D., Yale University; Adjunct Associate Professor of Psychology

- OTTO FEINSTEIN: B.A., University of Chicago; M.A., University of Geneva, Switzerland; Ph.D., University of Chicago; Professor of Science of Society
- DAVID FELD: B.A., M.D., University of Michigan; Clinical Assistant Professor of Gynecology and Obstetrics
- CAROLYN S. FELDKAMP: B.S., M.S., Ph.D., University of Michigan; Assistant Professor of Pathology
- PAUL H. FELDMAN: B.A., B.M., M.D., Wayne State University; Clinical Assistant Professor of Psychiatry
- RICHARD FELDSTEIN: B.A., M.D., Wayne State University; Clinical Instructor in Psychiatry
- EDWIN E. FELJEN, JR.: B.A., M.A., Ph.D., University of Minnesota; Assistant Professor of Urban Humanities
- J. KAY FELT: B.A., Northwestern University; J.D., University of Michigan; Adjunct Assistant Professor of Community Medicine
- RICHARD FEMMEL: B.S., Northwestern University; Assistant Professor of Journalism
- TSE-YUN FENG: B.S.E.E., National Taiwan University; M.S.E.E., Oklahoma State University; Ph.D., University of Michigan; Professor of Electrical and Computer Engineering
- GARY D. FENN: B.S. (Pharmacy), Ferris State College; M.S., Ph.D., Purdue University; Associate Professor of Pharmaceutics
- JOHN F. FENNESSEY: B.S., Massachusetts Institute of Technology; M.D., Tufts University; J.D., Wayne State University; Clinical Associate Professor of Pathology
- ERIC FENSTER: B.S., Ph.D., University of Chicago; Assistant Professor of Science and Technology
- MERYL M. FENTON: B.M., M.D., Wayne State University; Clinical Assistant Professor of Internal Medicine
- RAYMOND P. FERGUSON: B.M., Oklahoma Baptist University; M.M., Syracuse University; Associate Professor of Music
- LOUIS A. FERMAN: B.A., Brown University; M.A., Boston University; Ph.D., Cornell University; Adjunct Professor, School of Social Work
- FELIX FERNANDEZ-MADRID: M.D., University of Buenos Aires; Ph.D., University of Miami; Professor of Internal Medicine
- HECTOR R. C. FERNANDEZ: B.S., Ph.D., University of Miami; Associate Professor of Biology
- RICHARD J. FERRARA: A.B., West Virginia University; B.S., West Virginia Medical School; B.M., M.D., Northwestern Medical School; M.S., Wayne State University; Clinical Associate Professor of Dermatology and Syphilology
- GREGORIO V. FERRER: M.D., University of the Philippines; Clinical Instructor in Internal Medicine
- BRADFORD FIELD: B.A., Hiram College; M.A., Kent State University; Ph.D., University of Maryland; Assistant Professor of English
- DANIEL T. FIELD: B.A., Boston College; M.A., University of Missouri; Instructor in Speech
- MARY LEE FIELD: B.S., M.A., Ph.D., University of Missouri; Assistant Professor of Urban Humanities
- LEO S. FIGIEL: B.S., University of Detroit; M.D., St. Louis University; Clinical Associate Professor of Radiology
- STEVEN J. FIGIEL: B.S., University of Detroit; M.D., St. Louis University; Clinical Associate Professor of Radiology
- PHILLIP G. FIKE: B.A., M.S., University of Wisconsin; Professor of Art
- JANET E. FINDLATER: A.B., Smith College; J.D., University of Michigan; Assistant Professor of Law
- JANE C. FINK: A.A., Stephens College; M.A., State University of Iowa; Associate Professor of Health and Physical Education
- LARRY A. FINKELSTEIN: B.S., City College of New York; M.S., University of Michigan; Ph.D., University of Birmingham; Associate Professor of Mathematics
- LIONEL FINKELSTEIN: B.A., M.D., University of Michigan; Clinical Assistant Professor of Psychiatry
- IRA J. FIRESTONE: B.A., Cornell University; Ph.D., New York University; Associate Professor of Psychology
- NATHAN S. FIRESTONE: M.D., Wayne State University; Clinical Instructor in Pediatrics
- PAUL G. FIRNSCHILD: B.S., M.D., Wayne State University; Clinical Instructor in Surgery
- DAVID C. FISCELLA: B.A., William and Mary College; M.A., Wayne State University; Instructor in Health and Physical Education
- JOAN B. FISCELLA: B.A., St. Mary's College; M.A., Notre Dame University; Instructor in Urban Humanities
- FREDERICK J. FISCHER: M.D., University of Michigan; Clinical Professor of Orthopedic Surgery
- GEORGE A. FISCHER: B.S., M.S., Ph.D., University of Detroit; Clinical Instructor in Pathology
- LORENE FISCHER: B.A., M.A., Columbia University; Dean of the College of Nursing and Professor of Nursing
- JOSEPH FISCHHOFF: B.S., M.D., University of Illinois; Professor of Psychiatry
- KENNETH H. FISH: B.S. (Pharmacy), Albany College of Pharmacy; Pharm.D., University of Michigan; Adjunct Associate Professor of Hospital Pharmacy
- EDWARD R. FISHER: B.S., University of California; Ph.D., Johns Hopkins University; Professor of Chemical and Metallurgical Engineering and Member of Research Institute for Engineering Sciences
- GEORGE S. FISHER: B.A., Yale University; M.D., University of Michigan; Clinical Associate Professor of Internal Medicine
- GORDON R. A. FISHMAN: B.A., M.D., Wayne State University; Clinical Instructor in Ophthalmology
- JEANNE FITZGERALD: B.S., Hunter College; M.P.H., University of Michigan; Adjunct Assistant Professor of Nursing
- THOMAS P. FITZGERALD: B.F.A., Cleveland Institute of Art; M.F.A., Cranbrook Academy of Art; Assistant Professor of Art
- JOYCE FITZPATRICK: B.S.N., Georgetown University; M.S., Ohio State University; Ph.D., New York University; Associate Professor of Nursing
- THOMAS M. FLAKE: B.S., University of Michigan; M.D., Wayne State University; Clinical Associate Professor of Surgery
- JOSEPH FLEISCHMAN: B.S., City College of New York; Ph.D., Yeshiva University; Assistant Professor of Mathematics
- LARRY E. FLEISCHMAN: B.S., University of Detroit; M.D., Johns Hopkins University; Associate Professor (FTA) of Pediatrics
- THEODORE B. FLEMING, JR.: B.A., M.A., Indiana University; Ph.D., Yale University; University Ombudsman and Professor of Political Science
- JEANNE A. FLOOD: B.A., Mundelein College; M.A., Loyola University; Ph.D., University of Michigan; Associate Professor of English
- WILLIAM S. FLOYD: B.S., Massachusetts Institute of Technology; M.D., Wayne State University; Clinical Assistant Professor of Gynecology and Obstetrics
- MARIE N. FLY: B.S., M.D., Wayne State University; Clinical Assistant Professor of Pathology
- JAMES O. FLYNN: A.B., University of California at Los Angeles; Ph.D., University of California at Berkeley; Associate Professor of Management
- PIERO FOA: M.D., University of Milano Medical School; Doctor of Chemistry; University of Milano Faculty of Science; Professor of Physiology
- KARL W. FOLLEY: B.S., M.S., University of Saskatchewan; M.A., Ph.D., University of Toronto; Professor Emeritus of Mathematics
- W. EUGENE FOOR: B.S., Shippensburg State College; Ph.D., University of Massachusetts; Professor of Biology
- RONALD W. FORD: B.S., M.S., Kent State University; Ph.D., University of Maryland; Assistant Professor (FTA) of Audiology
- SAUL Z. FORMAN: M.D., University of Michigan; Clinical Assistant Professor of Psychiatry
- EDWIN J. FORSYTHE: B.A., M.A., Ph.D., University of Missouri; Professor of Management
- SYLVIA FORTE: B.S., Kent State University; M.A., Wayne State University; Instructor in Social Science
- ROBERT P. FOSNAUGH: B.A., M.D., Ohio State University; Clinical Assistant Professor of Dermatology and Syphilology
- MICHAEL D. FOULDS: M.D., University of Alberta; Assistant Professor of Pediatrics
- MARCIA S. FOWLER: B.S., University of Michigan; M.D., Wayne State University; Assistant Professor of Internal Medicine
- CLEMENT A. FOX: B.S., Marquette University; M.A., Ph.D., University of Michigan; Professor of Anatomy
- GREER LITTON FOX: A.B., Randolph-Macon Woman's College; M.A., Ph.D., University of Michigan; Adjunct Associate Professor of Sociology
- SERECK H. FOX: D.Sc., Professor Emeritus of Industrial Pharmacy

DOROTHY L. FRACKELTON: B.S., M.Ed., Wayne State University; University Vice President for Student Affairs and Assistant Professor of Nursing

DAVID M. FRADKIN: B.S., University of California; Ph.D., Iowa State University; Assistant Chairman and Professor of Physics

JACKSON C. FRANCE: M.D., Wayne State University; Clinical Associate Professor of Surgery

HELEN FRANCIS: B.A., Smith College; M.S.S.W., Columbia University; Associate Professor Emerita, School of Social Work

PEDRO S. FRANCO: B.S., Monseignor Lasagna College; M.D., National University (Paraguay); Clinical Instructor in Internal Medicine

KARNI W. FRANK: B.S., University of Paris; M.D., Goethe University; Instructor in Pathology

ROBERT N. FRANK: A.B., Harvard University; M.D., Yale University; Associate Professor of Ophthalmology

MARK S. FRANKEL: B.A., Emory University; Ph.D., George Washington University; Assistant Professor of Political Science

DANIEL R. FRANTZ: B.S., M.A., Ph.D., University of Michigan; Assistant Professor of Mathematics

JOHN CARL FRANZOSA, JR.: B.A., University of Connecticut; M.A., Ph.D., State University of New York at Buffalo; Assistant Professor of English

WINIFRED R. FRASER: A.B., M.A., Ph.D., Wayne State University; Assistant Dean for Graduate Studies and Associate Professor of Psychology

ROBERT R. FREEDMAN: B.A., University of Chicago; Ph.D., University of Michigan; Adjunct Assistant Professor of Psychology

MIRIAM FREELING: B.A., Skidmore College; Certificate in Occupational Therapy, Wayne State University; M.A., Western Michigan University; Assistant Professor of Occupational Therapy

MICHAEL FREEMAN: M.E., University of Odessa; Ch.E., University of Michigan; J.D., B.A., M.D., Wayne State University; Clinical Assistant Professor of Internal Medicine

EUGENE L. FREITAS: B.S., University of Detroit; M.D., Wayne State University; Clinical Assistant Professor of Radiology

MARY FRELIGA: B.S.N., University of Pittsburgh; M.S., University of Rochester; M.P.H., University of Michigan; Assistant Professor of Nursing

RICHARD FREMON: B.A., Columbia College; M.S., Ph.D., University of Michigan; Adjunct Assistant Professor of Mathematics

JAMES L. FREY: B.S., M.D., University of Chicago; Clinical Assistant Professor of Ophthalmology

ALEXANDER FRIEDLAENDER: B.A., M.S., M.D., Wayne State University; Clinical Assistant Professor of Internal Medicine

SIDNEY FRIEDLAENDER: A.B., M.D., Wayne State University; M.S., Northwestern University; Clinical Professor of Internal Medicine

LOUIS L. FRIEDLAND: B.A., University of Wisconsin; M.A., Ph.D., University of Cincinnati; Professor of Political Science; Director of Criminal Justice Program

PETER J. FRIEDLANDER: B.S., City College of New York; M.A., State University of New York; Instructor in Social Science

HERBERT FRIEDMAN: B.S., City College of New York; M.D., Albert Einstein School of Medicine; Clinical Instructor in Internal Medicine

JANE M. FRIEDMAN: B.A., J.D., University of Minnesota; Professor of Law

SHERWOOD E. FRIEDMAN: B.A., University of Michigan; D.O., Chicago College of Osteopathic Medicine; Clinical Instructor in Internal Medicine

EMANUEL FRISCH: B.A., Cornell University; M.D., State University of New York; Clinical Assistant Professor of Internal Medicine

DANIEL FROHARDT: B.A., Grinnell College; M.A., Ph.D., University of California; Assistant Professor of Mathematics

CHARLES E. FROHMAN: B.S., A.M., Indiana University; Ph.D., Wayne State University; Professor of Biochemistry

JACK FRONT: M.B.A., Michigan State University; B.S., West Virginia University; Adjunct Instructor in Physical Therapy

S. NICHOLAS FRONTZAK: B.A., University of Michigan; LL.B., J.D., Detroit College of Law; Instructor in Mortuary Law

HEINER FROST: M.D., University of Hannover; Assistant Professor of Immunology and Microbiology and Assistant Professor of Internal Medicine

PHILIP FROST: B.A., Yeshiva University; M.D., State University of New York at Buffalo; Assistant Professor of Immunology and Microbiology and Assistant Professor of Internal Medicine

MORRIS FRUMIN: B.S., Michigan State University; M.D., Wayne State University; Clinical Instructor in Psychiatry

TIKVAH FRYMER: B.A., City College of New York; B.H.L., Jewish Theological Seminary; M.A., Yale University; Assistant Professor of Near East and Asian Studies

WILLIAM R. FULGENZI: B.S., University of Detroit; M.D., Wayne State University; Clinical Instructor in Orthopedic Surgery

TERRY A. FULLER: B.S.E.E., Western N.E. College; Worcester Polytechnic Institute; Ph.D., Clark University; Clinical Instructor in Ophthalmology

ROBERT B. FURLONG: B.A., State University of New York at Binghamton; M.S., Ph.D., University of Illinois; Chairman and Associate Professor of Geology

ANDRE W. FURTADO: B.S., University of Bombay; B.S.C.E., M.S.E., Ph.D., University of Michigan; Assistant Professor of Science and Technology

JOHN A. FUSHMAN: B.S., M.D., University of Michigan; Clinical Instructor in Otolaryngology

BEATRIX FUZET-PRZEKOP: Licence de Lettres, Universite de Clermont Ferrand; Licence de Lettres, Universite de Paris; Instructor in French

JOHN H. GAETH: B.A., M.A., University of Nebraska; Ph.D., Northwestern University; Chairman and Professor of Audiology and Professor of Speech

CARL A. GAGLIARDI: B.A., M.D., Yale University; Clinical Instructor in Pediatrics

RAYMOND A. GAGLIARDI: B.S., M.D., Yale University; Clinical Assistant Professor of Radiology

RICHARD R. GALA: B.S., Ph.D., Rutgers University; Professor of Physiology

THOMAS H. GALANTOWICZ: M.D., University of Michigan; Clinical Instructor in Ophthalmology

VERNON K. GALE: B.S., M.A., University of Wyoming; Associate Professor of Health and Physical Education

GILBERT GALENS: B.S., M.D., Wayne State University; Clinical Assistant Professor of Internal Medicine

JAMES P. GALLAGHER: M.B., B.Ch., B.A.O., National University of Ireland; Clinical Instructor in Internal Medicine

VINCENT J. GALLANT: M.D., Laval University; Clinical Assistant Professor of Surgery

JOSEPH GALVIN: J.D., Wayne State University; Adjunct Professor of Law

SUNILENDU N. GANGULY: I.Sc., Vedyasagar College; M.B.B.S., Medical College of Calcutta; Assistant Professor of Internal Medicine

STANLEY K. GANGWERE: A.B., M.S., Ph.D., University of Michigan; Professor of Biology

THOMAS J. GANOS: B.S., M.D., Wayne State University; Clinical Instructor in Family Medicine

ROBERT I. GANS: B.S., M.D., Wayne State University; Clinical Instructor in Ophthalmology

MAX J. GARBER: B.S., Wayne State University; M.D., University of Michigan; Clinical Assistant Professor of Pediatrics

JOHN F. GARDE: B.A., University of Detroit; M.S., Wayne State University; Chairman and Assistant Professor of Anesthesia

HAROLD H. GARDNER: B.S., University of Wyoming; M.D., University of Rochester; Adjunct Professor of Nursing and Adjunct Professor, School of Social Work; Executive Director, University Clinics

JUDITH L. GARDNER: B.A., Wayne State University; Ph.D., Union Graduate School; Assistant Professor of Social Science

LAMAURICE H. GARDNER: Ph.B., M.A., University of Detroit; Ph.D., Loyola University; Professor of Psychology

LAWRENCE W. GARDNER: B.S., M.S., M.D., Wayne State University; Clinical Assistant Professor of Pathology

MAX L. GARDNER: B.S., M.D., University of Arkansas; M.S., University of Michigan; Clinical Assistant Professor of Psychiatry

- JEAN GARZA: B.S., Central Michigan University; Instructor in Medical Technology
- H. HARVEY GASS: B.A., M.D., University of Michigan; Clinical Professor of Neurosurgery
- HERTHA GAST: B.S.N., M.S.N., Wayne State University; Assistant Professor of Nursing
- WILLIAM T. GATFIELD: M.D., Queens University, Ontario; Clinical Instructor in Pediatrics
- BIENVENIDO GATMAITAN: M.D., University of the Philippines; Assistant Professor (FTA) of Internal Medicine
- WARREN E. GAUERKE: B.S., Wisconsin State College; M.A., University of Wisconsin; Ph.D., University of Chicago; Professor of Education
- RICHARD G. GAUSE: A.B., Wabash College; M.D., University of Cincinnati; Clinical Instructor in Internal Medicine
- ALVA A. GAY: B.A., M.A., Ph.D., Western Reserve University; Associate Professor Emeritus of English
- KARL H. GAYER: B.S., M.S., Case Western Reserve University; Ph.D., Ohio State University; Professor of Chemistry
- NORMAN F. GEHRINGER: M.D., University of Michigan; Clinical Instructor in Family Medicine
- EUGENE GELZAYD: M.D., Wayne State University; Clinical Assistant Professor of Internal Medicine
- MARY L. GENDERNALIK: B.A., Michigan State University; M.A.T., Wayne State University; Instructor in Education
- MICHAEL GEOGHEGAN: B.A., Colgate University; M.D., Wayne State University; Clinical Instructor in Orthopedic Surgery
- B. JAMES GEORGE: B.A., J.D., University of Michigan; Professor of Law
- JOHN A. GEORGE: B.A., Sacred Heart Seminary; S.T.L., Gregorian University; M.A., Ph.D., St. Louis University; Associate Professor of Education
- JONATHAN GEORGE: A.B., A.M., Ph.D., Syracuse University; Assistant Professor of Urban Humanities
- JOHN A. GERALT: B.S., Wayne State University; M.D., University of Michigan; Clinical Instructor in Family Medicine
- DONALD G. GERARD: B.S., Calvin College; M.D., Wayne State University; Clinical Instructor in Family Medicine
- ROBERT GERISCH: B.S., M.D., Wayne State University; Clinical Assistant Professor of Internal Medicine
- MOHAMMED S. GHAUSI: B.S.E.E., M.S.E.E., Ph.D., University of California at Berkeley; Chairman and Professor of Electrical and Computer Engineering
- PIERRE F. GIAMMANCO: M.D., Wayne State University; Clinical Instructor in Otolaryngology
- JAMES A. GIBB: M.A., Professor Emeritus of Music
- MARY LOU GIBBS: R.T., School of Radiation Therapy Technology, Henry Ford Hospital; Instructor in Radiation Therapy Technology
- PAUL T. GIBLIN: B.A., Johns Hopkins University; M.A., Ph.D., Ohio State University; Assistant Professor of Family and Consumer Resources
- WILLIAM GIBSON: B.S., M.D., Howard University; Clinical Assistant Professor of Internal Medicine
- CORINNE GILB: B.A., University of Washington; M.A., University of California at Berkeley; Ph.D., Radcliffe-Harvard University; Professor of History
- ALASDAIR G. GILCHRIST: M.B., B.S., University of London; Assistant Professor of Otolaryngology
- CLYDE GILES: B.A., University of Cincinnati; M.S.W., Wayne State University; Assistant Professor, School of Social Work
- CONRAD L. GILES: M.D., University of Michigan; Clinical Associate Professor of Ophthalmology
- PETER J. GILLERAN: B.A., Colorado College; M.F.A., Cranbrook Academy of Art; Professor of Art
- HON. HORACE W. GILMORE: B.A., LL.B., University of Michigan; Adjunct Professor of Law
- JAMES L. GILREATH: B.S., West Virginia State College; M.D., Howard University; Clinical Instructor in Internal Medicine
- JOHN GILROY: M.B., B.S., M.D., University of Durham; Chairman and Professor of Neurology
- HAROLD I. GINSBERG: B.A., M.D., Wayne State University; Clinical Instructor in Internal Medicine
- MICHAEL J. GIORDANO: B.S., Seton Hall University; M.A., Ph.D., University of Minnesota; Assistant Professor of French
- JOELLA GIPSON: B.M., Mount St. Mary's College; M.A., State University of Iowa; Ph.D., University of Illinois; Associate Professor of Education
- CYNTHIA E. GITT: B.A., Wheaton College; J.D., George Washington University; Associate Professor of Law
- DONOVAN H. GIVENS, JR.: M.D., University of Michigan; Clinical Assistant Professor of Internal Medicine
- MARTIN GLABERMAN: B.S.S., City College of New York; M.A., University of Detroit; Ph.D., Union Graduate School; Instructor in Social Science
- ROBERT GLADSTONE: Adjunct Assistant Professor of Music
- ALAN G. GLAROS: B.A., Stanford University; Ph.D., State University of New York at Stony Brook; Assistant Professor of Psychology
- JOHN E. GLAVIN: B.A., J.D., University of Michigan; Professor of Law
- SIDNEY GLAZER: A.B., Wayne State University; A.M., Ph.D., University of Michigan; Professor Emeritus of History
- STEPHEN P. GLEIT: A.B., Washington University; J.D., State University of New York at Buffalo; Instructor in Law
- ROBERT J. GLENNON, JR.: B.A., J.D., Boston College; M.A., Brandeis University; Associate Professor of Law
- MILTON D. GLICK: A.B., Augustana College; Ph.D., University of Wisconsin; Professor of Chemistry
- SANDRA GLUCK: B.S., M.S., University of Michigan; Instructor in Medical Technology
- ALEGRO J. GODLEY: B.S., Hampton Institute; M.D., University of Michigan; Clinical Associate Professor of Family Medicine
- PENRITH GOFF: B.A., University of Kentucky; M.A., Ph.D., University of California at Los Angeles; Professor of German
- KEMAL M. GOKNAR: M.D., Istanbul University; Clinical Assistant Professor of Psychiatry
- HOWARD GOLDBERG: B.A., M.D., Wayne State University; Clinical Instructor in Internal Medicine
- RUTH L. GOLDBERG: B.A., Hunter College; Diploma in Social Work, Columbia University; Professor, School of Social Work
- THEODORE GOLDBERG: B.A., M.A., University of Buffalo; Ph.D., University of Toronto; Chairman and Professor of Community Medicine
- THEODORE GOLDBERG: B.A., M.S.W., Ed.D., Wayne State University; Associate Professor of Social Work
- SAMUEL GOLDEN: B.A., Boston University; M.A., University of Maine; Ph.D., Trinity College; Professor of English
- SOLOMON GOLDENBERG: M.D., University of Toronto; Clinical Instructor in Surgery
- BERNARD M. GOLDMAN: A.B., M.A., Wayne State University; Ph.D., University of Michigan; Professor of Art History and Humanities
- HAROLD GOLDMAN: Ph.B., M.S., University of Chicago; Ph.D., University of Illinois; Professor of Pharmacology
- MARK S. GOLDMAN: B.S., Brooklyn College; M.S., Ph.D., Rutgers University; Assistant Professor of Psychology
- MILTON H. GOLDRATH: B.S., M.D., University of Michigan; Professor of Gynecology and Obstetrics
- ARNOLD GOLDSMITH: B.A., Boston University; M.A., Ph.D., University of Wisconsin; Professor of English
- A. S. GOLDSTEIN: B.S., Columbia University; M.D., Georgetown University; Assistant Professor of Neurology
- HERBERT GOLDSTEIN: B.A., M.D., New York University; Clinical Assistant Professor of Internal Medicine
- JONE R. GOLDSTEIN: B.S., University of Minnesota; M.A., Ph.D., State University of New York at Buffalo; Assistant Professor of English
- HENRY L. GOLEMBA: B.Ph., M.A., Wayne State University; Ph.D., University of Washington; Assistant Professor of English
- † CORNELIUS L. GOLIGHTLY: A.B., Talladega College; A.M., Ph.D., University of Michigan; Associate Dean of the College of Liberal Arts and Professor of Philosophy
- JOSEPH A. GOMEZ: B.A., State University of New York at Albany; M.A., Ph.D., University of Rochester; Assistant Professor of English
- NORMAND G. GOMOLAK: B.S., M.A., Eastern Michigan University; Assistant Professor of Criminal Justice
1. BERNARD GOODMAN: B. Comm., University of Toronto; Ph.D., Economics, University of California at Berkeley; Professor of Economics

† Deceased

MORRIS GOODMAN: B.S., M.S., Ph.D., University of Wisconsin; Professor of Anatomy

PAUL A. GOODMAN: M.D., University of Michigan; Clinical Assistant Professor of Pathology

ROBERT J. GOODMAN: B.A., M.A., University of Chicago; Ph.D., Northwestern University; Professor of Geography

SERGIO T. GOQUIOLAY: B.S., Lawrence Institute of Technology; M.B.A., Ph.D., Michigan State University; Assistant Professor of Marketing

DONALD H. GORDON: B.A., Princeton University; J.D., LL.M., Harvard University; Dean of the Law School and Professor of Law

MARJORIE GORDON: B.A., Hunter College; Adjunct Assistant Professor of Music

MARVIN GORDON: M.D., University of Michigan; Clinical Instructor in Radiology

NATHAN GORDON: Certificate, Juilliard School of Music; Adjunct Assistant Professor of Music

SEYMOUR GORDON: B.A., M.D., University of Michigan; Clinical Assistant Professor of Pediatrics

LESTER S. GORELIC: B.S., Illinois Institute of Technology; Ph.D., University of Chicago; Assistant Professor of Chemistry

MARTIN J. GORELICK: B.S., University of Detroit; M.D., Wayne State University; Clinical Assistant Professor of Family Medicine

JAY GORELL: A.B., New York University; M.D., State University of New York; Assistant Professor of Neurology

DONALD E. GORTON: B.S., M.B.A., Wayne State University; Associate Professor of Accounting

EDMOND J. GOSTINE: B.S., University of Detroit; M.D., Wayne State University; Clinical Instructor in Family Medicine

JAMES E. GOTHAM: M.D., Creighton University; Assistant Professor of Neurology

MILDRED GOTTDANK: B.A., Hunter College; M.A., New York University; Professor of Nursing

BERNARD GOTTFRIED: LL.B., University of Detroit; Adjunct Professor of Law

JACQUES S. GOTTLIEB: B.S., M.D., Harvard University; Professor of Psychiatry

SYMOND R. GOTTLIEB: B.A., M.H.A., LL.B., University of Michigan; Adjunct Assistant Professor of Community Medicine

WESLEY L. GOULD: A.B., Baldwin-Wallace College; M.A., Ohio State University; Ph.D., Harvard University; Professor of Political Science

HOWARD J. GOURWITZ: J.D., Wayne State University; LL.M., New York University; Adjunct Professor of Law

A. BRUCE GRAHAM: B.A., Colorado State College of Education; M.A., University of Denver; Ph.D., Northwestern University; Clinical Associate Professor of Audiology

HAZEL E. GRAHAM: M.A., Associate Professor Emerita of Education

ISABEL GRAHAM: B.A., M.A., Wayne State University; Associate Professor Emerita of English

JOHN GRAHAM: B.A., M.D., Washington University; Clinical Assistant Professor of Internal Medicine

JOSE GRANDA: M.D., University of Madrid; Ph.D., University of Maryland; Associate Professor of Internal Medicine

STANLEY C. GRANDON: B.S., M.D., Wayne State University; Clinical Instructor in Ophthalmology

WILLIAM G. GRANNIS: B.A., Heidelberg College; M.D., Ohio State University; Clinical Instructor in Family Medicine

JOSEPH D. GRANO: J.D., Temple University; LL.M., University of Illinois; Professor of Law

ABRAHAM H. GRANT: B.S., Wayne State University; M.D., University of Michigan; Clinical Assistant Professor of Internal Medicine

ARMANDO GRANT: Universidad de las Americas; Ph.D., University of California at Los Angeles; Assistant Professor of Spanish

ALASTAIR GRANVILLE-JACKSON: B.A., University of Cape Town; M.F.A., Cranbrook Academy of Art; F.R.S.A.; Assistant Professor of Art

JAMES H. GRAVES: B.S., B.M., M.D., M.S., Northwestern University; Clinical Associate Professor of Psychiatry

MARGARET H. GRAZIER: B.A., M.A., Colorado State College; Professor of Education

EDWARD W. GREEN: M.D., Medical College of Virginia; Professor (FTA) of Pediatrics

HENRY L. GREEN: B.A., M.D., University of Michigan; Clinical Assistant Professor of Internal Medicine

LEWIS GREEN: M.D., University of Michigan; Clinical Instructor in Family Medicine

MILTON M. GREEN: B.S., M.D., University of Michigan; Clinical Assistant Professor of Orthopedic Surgery

JULIUS J. GREENBERG: A.B., M.D., Wayne State University; Clinical Assistant Professor of Internal Medicine

MORRIS GREENBERG: B.A., M.D., Wayne State University; Clinical Instructor in Family Medicine

STANLEY GREENBERG: B.A., M.D., University of Pennsylvania; Clinical Assistant Professor of Dermatology and Syphilology

LAWRENCE R. GREENE: B.S., M.A., J.D., Wayne State University; Adjunct Faculty in Urban Planning

GARY R. GREENFIELD: B.A., University of California at Los Angeles; Ph.D., Oregon State University; Assistant Professor of Mathematics

ROBERT H. GREGG: M.D., University of Iowa; Associate Professor (FTA) of Pediatrics

JOHN N. GREKIN: A.B., M.D., University of Michigan; Clinical Professor of Dermatology and Syphilology

WILLIAM H. GRIER: B.S., M.D., University of Michigan; Professor of Psychiatry

JOHN H. GRIFFIN: M.D., Jefferson Medical College; Clinical Assistant Professor of Radiology

ROBERT J. GRIFFIN: B.A., Washington University; M.D., Boston University; Clinical Assistant Professor of Internal Medicine

JOHN W. GRIGG: M.D., Wayne State University; Clinical Assistant Professor of Otolaryngology

ALEXANDER GRINSTEIN: B.A., M.D., University of Buffalo; Clinical Professor of Psychiatry

JAMES L. GRISELL: B.A., M.A., Ph.D., Wayne State University; Adjunct Associate Professor of Psychology

MICHAEL A. GRISHKOFF: M.D., Ludwig Maximilian University; M.S., University of Michigan; Clinical Instructor in Internal Medicine

JOHN H. GRIZ: B.S., M.D., Wayne State University; Clinical Assistant Professor of Orthopedic Surgery

WILLIAM GRONEMEYER: M.D., Western Reserve University; Professor (FTA) of Pediatrics

WILLIAM I. GROSSKY: B.S., Massachusetts Institute of Technology; M.S., Brown University; Ph.D., Yale University; Associate Professor of Mathematics

CHARLES W. GROSS: B.A., M.B.A., Michigan State University; D.B.A., University of Colorado; Assistant Professor of Marketing

D. JUNE GROSSBART: R.N., Bronson Methodist School of Nursing; B.S., M.A., Wayne State University; Assistant Professor of Family and Consumer Resources

SIDNEY H. GROSSBERG: B.A., Wayne State University; M.S.W., University of Michigan; Ph.D., Wayne State University; Associate Professor, School of Social Work

GORDON L. GROSSCUP: B.A., M.A., University of California at Berkeley; Ph.D., University of California at Los Angeles; Associate Professor of Anthropology

LAWRENCE I. GROSSMAN: B.S., Brandeis University; Ph.D., Albert Einstein College of Medicine; Assistant Professor of Biochemistry

SOL C. GROSSMAN: B.A., College of the City of Detroit; M.A., University of Michigan; B.Med., M.D., Detroit College of Medicine; Clinical Associate Professor of Psychiatry

WALTER GUEVARA: M.D., Cordoba National University; Clinical Assistant Professor of Psychiatry

C. NORMAN GUICE: A.B., Hendrix College; M.A., Duke University; Ph.D., University of California; Assistant Dean, College of Liberal Arts; Associate Professor of History

SAMI F. GUINDI: M.D., Cairo University; Clinical Instructor in Gynecology and Obstetrics

SUBHASH C. GULATI: M.B.B.S., Delhi University; Assistant Professor of Internal Medicine

GEORGE E. GULLEN, JR.: J.D., Wayne State University; President of the University and Professor of Management

SURAJ N. GUPTA: M.S., St. Steven's College; Ph.D., University of Cambridge; Distinguished Professor of Physics

ELISHA S. GURDJIAN: A.B., International College; M.S., M.D., Ph.D., University of Michigan; Professor Emeritus of Neurosurgery

- DANIEL R. GUSTAFSON: B.A., University of Minnesota; Ph.D., Iowa State University; Associate Professor of Physics
- STANLEY S. GUTERMAN: A.B., University of Chicago; Ph.D., Columbia University; Associate Professor of Sociology
- JOSEPH GUTMANN: B.A., Temple University; M.A., New York University; Ph.D., Hebrew Union College; Professor of Art History
- BENJAMIN R. GUTOW: A.B., M.B., M.D., Wayne State University; Clinical Instructor in Internal Medicine
- JOHN GUTOWSKI: B.A., M.A., Wayne State University; Assistant Professor of English
- MEYER A. GUTTERMAN: M.D., University of Michigan; Clinical Instructor in Internal Medicine
- JOSEPH F. GUYON: B.S., Catholic University of America; M.D., Marquette University; Clinical Instructor in Physical Medicine and Rehabilitation
- DANIEL R. GUYOT: B.A., M.D., Wayne State University; Clinical Instructor in Radiology
- URSULA C. HAAS: M.A., University of Michigan; Ph.D., Ohio State University; Assistant Professor of German
- DIETHER H. HAENICKE: Dr. Phil., Universitat Munchen; Vice President and Provost of the University and Professor of German
- E. SAAD E. HAFEZ: B.S., University of Cairo; Ph.D., Cambridge University; Professor of Gynecology and Obstetrics
- YATES HAFNER: A.B., University of Notre Dame; Ph.D., Stanford University; Professor of Literature
- HARLAN L. HAGMAN: B.Ed., Northern Illinois University; M.A., Ph.D., Northwestern University; Professor of Education
- RICHARD B. HAHN: B.A., M.S., Wayne State University; Ph.D., University of Michigan; Professor of Chemistry
- MEDHI HAKIMI: M.D., Tehran University; Clinical Assistant Professor of Surgery
- HARRY P. HALE: B.S., Michigan College of Mining and Technology; M.S., University of Pittsburgh; Associate Professor of Mechanical Engineering
- G. PETER HALEKAS: B.A., Bowdoin College; M.D., Tufts Medical School; Clinical Assistant Professor of Gynecology and Obstetrics
- BURNIS HALL: B.S., M.Ed., Memphis State University; Ed.D., University of Tennessee; Assistant Professor of Education
- EDWIN C. HALL: B.A., M.A., Ph.D., University of Wisconsin; Professor of History
- KERMIT L. HALL: B.A., University of Akron; M.A., Syracuse University; Ph.D., University of Minnesota; Assistant Professor of History
- MAURICE A. HALL: B.A., Wayne State University; M.D., Meharry Medical College; Clinical Instructor in Ophthalmology
- RICHARD B. HALL: B.A., M.A., Ph.D., University of California; Assistant Professor of Philosophy
- RICHARD H. HALL: B.A., Albion College; M.D., Wayne State University; Clinical Assistant Professor of Orthopedic Surgery
- L. JAMES HALLEN: B.S., Wayne State University; M.D., University of Michigan; Clinical Assistant Professor of Internal Medicine
- S. WILLIAM HALPERIN: Ph.B., Ph.D., University of Chicago; Professor Emeritus of History
- ROBERT H. HAMBURG: B.S., M.D., Wayne State University; Clinical Associate Professor of Internal Medicine
- JAMES L. HAMILTON: B.A., Grinnell College; Ph.D., Economics, Duke University; Associate Professor of Economics
- JEAN F. HAMILTON: B.S., University of Akron; M.A., Ph.D., University of Iowa; Professor of Education
- ARTHUR M. HAMPARIAN: B.S., D.D.S., University of Detroit; M.S., Wayne State University; Assistant Professor of Anatomy
- LESLIE L. HANAWALT: B.A., M.A., Oberlin College; Ph.D., University of Michigan; Professor Emeritus of English
- DAVID HANDEL: B.S., California Institute of Technology; M.S., Ph.D., University of Chicago; Associate Professor of Mathematics
- JACK HANDEL: B.A., Long Island University; M.D., Chicago Medical School; Clinical Associate Professor of Radiology
- ANDREW J. HANKINS: B.A., University of Iowa; M.D., University of Michigan; Clinical Assistant Professor of Radiology
- KENNETH A. HANNINEN: B.S., University of Minnesota at Duluth; M.A., Ph.D., University of Minnesota at Minneapolis; Associate Professor of Education
- LOWELL J. HANSEN: B.S., Bemidji State College; M.A., Ph.D., University of Illinois; Associate Professor of Mathematics
- INGVARDA HANSON: B.S., University of Minnesota; M.S.N., Wayne State University; Assistant Professor of Nursing
- IHSAN UL HAQ: I.Sc., Edwardes College; M.B.B.S., University of Peshawar; Clinical Instructor in Internal Medicine
- WINFRED A. HARBISON: A.B., Wabash College; M.A., Ph.D., University of Illinois; Professor Emeritus of History
- PAUL P. HARBRECHT: B.A., Loyola University; J.D., Georgetown University; J.S.D., Columbia University; Professor of Law
- CLIFFORD V. HARDING, JR.: A.B., Brown University; M.S., Yale University; Ph.D., University of Pennsylvania; Professor of Ophthalmology
- GERALDINE M. HARDY: B.S., Winthrop College; M.D., Wayne State University; Clinical Instructor in Internal Medicine
- WARREN G. HARDY: B.A., University of Debuque; M.D., State University of Iowa; Clinical Assistant Professor of Neurosurgery
- CAMILLE K. HARIZE: M.D., University of Toulouse; Clinical Instructor in Family Medicine
- EUGENE A. HARKAWAY: B.S., M.D., Wayne State University; Assistant Professor of Radiology
- ROMAN W. HARKAWAY: B.S., M.S., M.D., Wayne State University; Associate Professor of Biology
- JOHN P. HARM: B.S., University of Notre Dame; M.D., University of Michigan; Clinical Assistant Professor of Pediatrics
- CHARLES R. HARMISON: B.A., University of Montana; Ph.D., University of Illinois; Associate Professor of Biophysics
- REGINALD W. F. HARNETT: M.B., Ch.B., St. Andrews University; Assistant Professor of Neurology
- CELESTINE M. HARRIGAN: A.B., University of Detroit; Instructor in Anesthesia
- EDWARD B. HARRINGTON: B.S., University of Detroit; M.D., University of Michigan; Clinical Assistant Professor of Otolaryngology
- FREDA A. HARRINGTON: B.S., M.Ed., Wayne State University; Professor of Education
- HARCOURT G. HARRIS: B.S., Fordham University; M.D., Howard University; Clinical Assistant Professor of Internal Medicine
- MICHAEL A. HARRIS: Ph.G., Rhode Island College of Pharmacy; B.S., Providence College; M.D., Georgetown University; Clinical Assistant Professor of Internal Medicine
- RONALD L. HARRIS: A.B., M.A., Ph.D., University of California at Los Angeles; Assistant Professor of English
- EDNA S. HARRISON: B.A., M.S.W., Wayne State University; Associate Professor, School of Social Work
- WILLIAM A. HARRITY: B.S., M.D., Wayne State University; Clinical Assistant Professor of Surgery
- MARTIN HART: A.B., M.D., Wayne State University; Clinical Assistant Professor of Dermatology and Syphilology
- ZWI H. HART: M.B., Chelsea Polytechnic, London University; M.D., University of Geneva; Associate Professor (FTA) of Pediatrics
- CARL HARTMAN: B.S., M.S., City College of New York; M.S.S.W., Columbia University; Associate Professor, School of Social Work
- DAVID W. HARTMAN: B.A., M.A., Wichita State University; Ph.D., Wayne State University; Assistant Professor of Social Science
- FRANK E. HARTUNG: A.B., Wayne State University; M.A., Ph.D., University of Michigan; Professor of Sociology
- JAMES J. HARTWAY: B.A., M.M., Wayne State University; Ph.D., Michigan State University; Assistant Professor of Music
- JOHN M. HARTZELL: B.A., Cornell University; M.S., University of Minnesota; M.D., University of Michigan; Clinical Assistant Professor of Surgery
- OPHELIA HARVEY: A.A., Stockton College; B.A., San Francisco State College; M.A., Sacramento State College; Instructor in Education
- JULIUS J. HARWOOD: B.S., College of the City of New York; M.S., University of Maryland; Adjunct Professor of Metallurgical Engineering
- WILLIAM A. HASE: B.S., University of Missouri; Ph.D., New Mexico State University; Assistant Professor of Chemistry

CARL M. HASEGAWA: B.A., M.D., University of Nebraska; Clinical Assistant Professor of Pathology

HOURIA HASSOUNA: Bac. Es Phil.; Bac. Es Sciences, Lycee Francois, Egypt; M.D., Cairo University Faculty of Medicine; Ph.D., Wayne State University; Assistant Professor of Physiology

RONALD W. HAUGHTON: B.A., University of Washington; M.A., University of Wisconsin; Vice President for Urban Affairs and Professor of Management

HELEN E. HAUSE: B.A., Ph.D., University of Pennsylvania; Associate Professor of Anthropology

I. JEROME HAUSER: A.B., M.D., University of Michigan; Clinical Professor Emeritus of Otolaryngology

SETH E. HAVEN: B.S., M.A., Ph.D., Ohio State University; Associate Professor Emeritus of Psychology

W. LANCE HAWORTH: B.Sc., University of Liverpool; M.Sc., University of Alberta; M.S., M.Phil., Ph.D., Yale University; Associate Professor of Metallurgical Engineering

DAVID B. HAWTOF: M.D., University of Texas; Clinical Assistant Professor of Surgery

MOLLY TAN HAYDEN: B.A., University of Chattanooga; M.D., Women's Medical College of Pennsylvania; Assistant Professor of Pathology

ROYAL C. HAYDEN, JR.: B.S., B.A., M.D., University of Minnesota; Clinical Assistant Professor of Otolaryngology

ANNAMARIE HAYES: B.S., Eastern Michigan University; M.A., Ph.D., Michigan State University; Associate Professor of Education

BILLIE HAYWARD: B.S.N., M.S.N., Wayne State University; Instructor in Nursing

JAMES C. HAZLETT, JR.: A.B., Kenyon College; M.S., Medical College of Georgia; Ph.D., Ohio State University; Assistant Professor of Anatomy

LINDA D. HAZLETT: B.S., St. Mary's College; M.S., Medical College of Georgia; Ph.D., Ohio State University; Assistant Professor of Anatomy

ROBERT T. HAZZARD: B.F.A., Illinois Wesleyan University; M.A., Michigan State University; Ph.D., University of Minnesota; Professor of Speech

LARRY E. HEATH: B.A., M.D., University of Michigan; Clinical Instructor in Dermatology and Syphilology

LEONARD P. HEATH: B.A., M.D., Wayne State University; Clinical Assistant Professor of Gynecology and Obstetrics

W. MARSHALL HEBBLEWHITE: B.A., M.A., University of Michigan; Associate Professor Emeritus of Accounting

DONALD S. HECOCK: B.A., Ohio Wesleyan University; M.A., Ohio State University; Ph.D., Syracuse University; Professor Emeritus of Political Science

JOHN G. HEGARTY: B.A., Westmar College; M.A., M.F.A., Iowa University; Assistant Professor of Art

FRANK E. HEGER: B.A., Eastern Michigan University; M.A., Ph.D., University of Michigan; Assistant Professor of Education

ROBERT P. HEIDELBERG: B.S., Wayne State University; M.D., Howard University; Clinical Assistant Professor of Dermatology and Syphilology

LOUIS E. HEIDEMAN: B.S., M.D., University of Michigan; Associate Professor of Pediatrics

GERHARDT HEIN: A.B., Columbia University; M.D., M.S., University of Michigan; Clinical Assistant Professor of Psychiatry

MARILYN HEINS: A.B., Radcliffe College; M.D., Columbia University; Associate Professor (FTA) of Pediatrics

REINHARD HIELBING: Vordiplom, M.S., Ph.D., Rheinische Friedrich Wilhelm Universität; Adjunct Professor of Engineering

WILFRIED HELLER: B.S., University of Wurzburg; Ph.D., University of Berlin; Professor Emeritus of Chemistry

ROBERT C. HENDERHAN: B.A., Kent State University; M.A., Ph.D., Ohio State University; Associate Professor of Education

ALLISON B. HENDERSON: B.S., Morehouse College; M.D., Meharry Medical College; Clinical Instructor in Internal Medicine

FREDERIC C. HENDERSON: B.S., University of Michigan; M.D., Wayne State University; Clinical Assistant Professor of Internal Medicine

H. RICHARD HENDERSON: B.S., Carleton College; M.D., University of Michigan; Adjunct Instructor in Clinical Pharmacy

HUGH W. HENDERSON: B.S., M.D., Wayne State University; Clinical Assistant Professor of Internal Medicine

HENDERSON HENDRICKS: B.S., M.Ed., Ed.D., Wayne State University; Assistant Professor of Education

THOMAS A. HENDRICKS: B.A., Dickinson College; J.D., University of Miami; Instructor in Law

NAEIM A. HENEIN: B.S., Cairo University; M.S., Alexandria University; Ph.D., University of Michigan; Acting Chairman and Professor of Mechanical Engineering

RAYMOND HENKIN: M.D., Baylor University; Clinical Assistant Professor of Internal Medicine

PETER H. HENNING: B.A., Amherst College; Ph.D., University of Michigan; Assistant Professor of Economics

JAMES G. HENRY: B.A., M.D., University of Oklahoma; Assistant Professor (FTA) of Pediatrics

RAYMOND L. HENRY: B.S., M.S., University of Illinois; Ph.D., Medical College of South Carolina; Professor of Physiology

RAMON M. HENSON: B.S., B.A., DeSales College; Ph.D., University of Michigan; Assistant Professor of Psychology

STEPHEN P. HEPLER: B.S., Ball State University; M.S., Ph.D., Ohio State University; Assistant Professor of Mathematics

ARNOLD HERARD: B.A., Lycee Petion; M.A., Hautes Etudes Ecole Normale Supérieure; B.C.L., Faculte De Droit; Doctor, Faculte De Lettres; Assistant Professor of Urban Humanities

ALICE V. WOLFRAM HERGE: B.A., Berea College; M.A., University of Michigan; Assistant Professor of Business Communication

MARTIN M. HERMAN: B.A., College of William and Mary; M.A., Yale University; Ph.D., University of Michigan; Chairman and Professor of Humanities

PATRICIA E. HERNLUND: B.A., Carleton College; M.A., Ph.D., University of Chicago; Professor of English

DAVID S. HERRESHOFF: B.A., University of Akron; M.A., Ph.D., University of Minnesota; Associate Professor of English

BARRY R. HERSCHMAN: B.S., Ohio State University; M.D., Wayne State University; Clinical Instructor in Pathology

ERNEST A. HERSHEY: B.A., Harvard University; M.D., Indiana University; Clinical Instructor in Surgery

JACK H. HERTZLER: B.S., M.D., State University of Iowa; Associate Professor of Surgery

HOWARD M. HESS: B.S.E.E., Wayne State University; M.S.E.E., University of Michigan; Professor Emeritus of Electrical Engineering

JOSEPH W. HESS: B.A., Utah State University; M.Ed., University of Illinois; M.D., University of Utah; Chairman and Professor of Family Medicine

OTTO HETZEL: B.A., Pennsylvania State University; J.D., Yale University; LL.M., Harvard University; Professor of Law

LOUIS F. HEYMAN: B.A., Miami University; M.D., University of Cincinnati; Clinical Assistant Professor of Pediatrics

ROGER F. HIGGINS: H. ND. (Engr.), Croydon University; M.S., Ph.D., University of Surrey; Assistant Professor of Surgery

JOHN D. HILBERRY: B.Arch., University of Michigan; Assistant Professor of Art

F. JANE HILL: B.A., University of California at Berkeley; M.A., Ph.D., University of California at Los Angeles; Associate Professor of Anthropology

GEORGE C. HILL: B.S., M.S., University of Pittsburgh; M.D., Meharry Medical College; Clinical Instructor in Surgery

GRACE HILL: B.S., M.S., Wayne State University; Adjunct Instructor in Medical Technology

WENDELL T. HILL, JR.: B.S. (Pharmacy), Drake University; M.S., Pharm.D., University of Southern California; Associate Professor of Hospital Pharmacy

GLENN I. HILLER: M.D., Marquette University; Clinical Assistant Professor of Internal Medicine

HERBERT HILLER: A.B., M.D., Columbia University; Clinical Instructor in Internal Medicine

LARRY W. HILLMAN: B.A., Music Education, Morehead State University; M.Ed., Ph.D., Miami University; Professor of Education

STEPHEN B. HILLMAN: B.A., University of Connecticut; M.S., Ph.D., Indiana University; Associate Professor of Education

WILLIAM HILTON: B.A., Michigan State University; M.A., Ph.D., Wayne State University; Professor of Humanistic Studies

- LAWRENCE HIMMEL: B.S., Cornell University; Ph.D., Carnegie Institute of Technology; Professor of Metallurgical Engineering
- GORDON HINZMANN: B.A., Wayne State University; M.A., Ph.D., Clark University; Assistant Professor of Social Science
- ALEXANDER H. HIRSCHFELD: A.B., M.D., University of Michigan; Clinical Associate Professor of Psychiatry
- CECELIA F. HISSONG: B.S., Notre Dame College; M.D., Loyola University; Clinical Assistant Professor of Family Medicine
- CHALMER G. HIXSON: B.S., M.A., Ohio State University; Ed.D., Columbia University; Professor and Director of Health and Physical Education
- KHANG-LOON HO: M.D., Kachsiung Medical College; Assistant Professor of Pathology
- MORRIS HOCHBERG: B.M., Michigan State University; M.A., Western Reserve University; D.M.A.; University of Michigan; Associate Professor of Music
- ADOLF R. HOCHSTIM: B.S., University of Miami; M.S., Florida State University; Ph.D., University of Florida; Professor of Mechanical Engineering
- WILLIAM O. HOCKHAMMER: B.A., Lawrence University; J.D., Northwestern University; Adjunct Professor of Law
- C. PAUL HODGKINSON: M.S., University of Michigan; M.D., Temple University Medical School; Clinical Professor of Gynecology and Obstetrics
- VOIGT R. HODGSON: B.S., M.S., Ph.D., Wayne State University; Associate Professor of Neurosurgery
- ARTHUR M. HOFFEINS: B.A., Wayne State University; J.D., University of Michigan; Associate Professor of Business Law
- ALAN M. HOFFMAN: B.S.Ed., M.Ed., Ohio University; Ed.D., Pennsylvania State University; Associate Professor of Education
- LOUIS HOFFMAN: M.D., Wayne State University; Clinical Assistant Professor of Psychiatry
- WILLIAM HOFFMAN: A.B., M.D., Marquette University; Assistant Professor (FTA) of Pediatrics
- RICHARD R. HOFFMANN: B.S. (Pharmacy), Pharm.D., Wayne State University; Adjunct Instructor in Clinical Pharmacy
- LEOLA HOGAN: B.S.N., Northwestern State College; M.S.N., Catholic University of America; Assistant Professor of Nursing
- GEORGE HOGG, JR.: B.S.E., University of Michigan; LL.B., Wayne State University; Adjunct Professor of Law
- GWENDOLYN Y. HOGUE: B.A., West Virginia State College; M.A., Wayne State University; Assistant Professor of Education
- GERARD C. HOKANSON: B.A., De Pauw University; Ph.D., Purdue University; Assistant Professor of Pharmacognosy
- DANIEL HOLLANDER: M.D., Baylor University; Associate Professor of Internal Medicine
- KEITH HOLLINGSWORTH: A.B., William Penn College; M.A., University of Chicago; Ph.D., Columbia University; Professor of English
- MELVIN L. HOLLOWELL: B.S., Wayne State University; M.D., Meharry Medical College; Clinical Assistant Professor of Urology
- EDWIN H. HOLMBERG, JR.: B.A., M.S.W., Wayne State University; Assistant Professor, School of Social Work
- JOSEPH C. HONET: M.S., Mayo Clinic; M.D., Albany Medical College; Associate Professor of Physical Medicine and Rehabilitation and Adjunct Associate Professor of Speech
- GEORGE J. HONZATKO: B.S., M.A., M.U.P., Wayne State University; Ph.D., University of Michigan; Chairman and Associate Professor of Urban Planning
- MARTHA HOOD: B.S.N., M.S.N., Wayne State University; Assistant Professor of Nursing
- FINLEY A. HOOPER: A.A., University of Chicago; B.S., Purdue University; M.A., Ph.D., University of Michigan; Professor of History
- WOLFGANG HOPPE: B.A., Wayne State University; LL.B., University of Michigan; Adjunct Professor of Law
- GEORGE H. HOPSON: B.S., University of Texas; M.D., Wayne State University; Instructor in Psychiatry
- WILLIAM B. HORNER: B.S., Wayne State University; Adjunct Assistant Professor of Music
- ALICE HORNING: A.B., Boston University; M.A., Michigan State University; Instructor in English
- SAMUEL B. HOROWITZ: A.B., Hunter College; Ph.D., University of Chicago; Adjunct Professor of Biology
- EUGENE D. HORRELL: B.S., University of South Dakota; M.D., Temple University; Clinical Assistant Professor of Orthopedic Surgery
- JAMES J. HORVATH: B.S., M.D., Wayne State University; Clinical Associate Professor of Orthopedic Surgery
- JEROME P. HORWITZ: B.S., M.S., University of Detroit; Ph.D., University of Michigan; Professor of Oncology
- NORMAN H. HORWITZ: B.S., M.S., Ph.D., Wayne State University; Clinical Associate Professor of Pathology
- JEAN M. HOSMER: M.A., Assistant Professor Emerita of Education
- T. I. M. ZAHUR HOSSAIN: M.B.B.S., Dacca Medical College; Assistant Professor (FTA) of Internal Medicine
- WILLIAM E. HOTH: B.S., University of Wisconsin; M.A., Ed.D., Teachers College, Columbia University; Professor of Education
- LOUIS HOUGH: B.A., M.A., Ph.D., University of Chicago; Professor of Finance and Business Economics
- R. ANTON HOUGH: B.S., University of Illinois; M.S., University of Michigan; Ph.D., Michigan State University; Assistant Professor of Biology
- WENDELL M. HOUGH: B.A., M.A., University of Florida; Ed.D., Wayne State University; Associate Dean and Professor of Education
- CHORNG-SHI HOUEH: B.S., National Taiwan University; Ph.D., Tokyo Metropolitan University; Professor Emeritus of Mathematics
- JOSEPH P. HOURIHAN: B.S., State University of New York College of Buffalo; Ed.M., Wayne State University; M.S.S.W., Columbia University; Ed.D., Wayne State University; Associate Dean and Professor, School of Social Work
- GLORIA HOUSE: B.A., M.A., University of California; Assistant Professor of Urban Humanities
- WILLIAM K. HOWARD: B.A., M.D., Vanderbilt University; Clinical Assistant Professor of Pediatrics
- J. FRED HOWCOTT: B.A., Central State University; M.S.W., Wayne State University; Assistant Professor, School of Social Work
- GLEN H. HOWELL: B.S., Wayne State University; M.S.E., M.E., University of Michigan; Associate Professor of Mechanical Engineering
- HOMER A. HOWES: A.B., Albion College; M.D., University of Michigan; Clinical Associate Professor of Internal Medicine
- HOWARD C. HOYT: A.B., M.S., Ph.D., University of Michigan; Associate Professor Emeritus of Physics
- LEW M. HRYHORCZUK: B.S., M.S., Wayne State University; Ph.D., University of Illinois; Assistant Professor of Biochemistry
- LINDA HRYHORCZUK: B.S., M.S., M.D., Wayne State University; Assistant Professor of Psychiatry
- DEH-YUAN HSU: B.S., National Taiwan University; M.S., Ph.D., Northwestern University; Assistant Professor of Civil Engineering
- CHARLES L. HUANG: B.S., Johns Hopkins University; L.M.L.R.C.P. & S.I., Royal College of Surgeons, Ireland; Assistant Professor of Surgery
- ROBERT E. HUBBARD: B.A., Ed.M., University of Rochester; Ph.D., Ohio State University; Dean of the College of Lifelong Learning and Professor of Education
- PHILIP J. HUBER: A.B., Yale University; M.D., Columbia University; Clinical Associate Professor of Neurosurgery
- BERT HUDGINS: Ph.D., Clark University; Professor Emeritus of Geography
- RICHARD A. HUDSON: B.A., Kalamazoo College; Ph.D., University of Chicago; Associate Professor of Biochemistry
- E. RAE HUDSPETH: B.S., North Texas University; M.D., University of Texas Medical Branch; Clinical Instructor in Gynecology and Obstetrics
- ELIZABETH A. HUFF: B.S., Michigan State University; M.A.T., Wayne State University; Instructor in Education
- CALVIN H. HUGHES: B.S., Grove City College; M.D., University of Michigan; Clinical Assistant Professor of Psychiatry
- DANIEL HUGHES: B.A., University of New Hampshire; M.A., Ph.D., Brown University; Professor of English
- JOHN HUGHES: M.D., Wayne State University; Instructor in Neurology

- POLLY MOSTELLER HUGHES: B.A., Albion College; M.S., University of Wisconsin; Ed.D., Wayne State University; Professor of Education
- ARTHUR L. HUGHETT: B.S., Lincoln Memorial University; M.D., University of Tennessee; Clinical Instructor in Psychiatry
- ARCHIE HULICK: B.S., M.D., Tufts University; Clinical Instructor in Internal Medicine
- FRANKLIN E. HULL: B.S., Wooster College; M.D., Harvard University; Associate Professor of Internal Medicine
- JAMES J. HUMES: M.D., Jefferson Medical College; Clinical Associate Professor of Pathology
- BARBARA M. HUMPHRIES: B.A., University of Michigan; M.A., Ph.D., Harvard University; Associate Professor of Philosophy
- A. LEE HUNT, JR.: B.S., University of Houston; M.A., Ph.D., Northwestern University; Assistant Professor of Criminal Justice
- LOIS HUNT: B.S.N., M.S.N., Wayne State University; Assistant Professor of Nursing
- JACOB I. HURWITZ: B.J.Ed., Boston Hebrew Teachers College; B.S., M.S.S.S., Boston University; Ph.D., University of Michigan; Professor, School of Social Work
- MUJTABA HUSAIN: M.D., Dow Medical College, University of Karachi; Clinical Instructor in Pathology
- M. COLTON HUTCHINS: B.S., M.D., Tufts University; Clinical Instructor in Internal Medicine
- RONALD E. HUTCHINS: B.S., M.B.A., Michigan State University; Assistant Professor of Finance and Business Economics
- DAVID J. HUTCHINSON: A.B., University of Michigan; J.D., Indiana University; Instructor in Law
- WILLIAM E. HUTH: B.S., University of Dayton; LL.B., Yale University; Adjunct Professor of Law
- MARQUETA C. HUYCK: B.S., R.D., Wayne State University; M.S., Western Reserve University; Associate Professor of Family and Consumer Resources
- KAI HWANG: B.S.E.E., National Taiwan University; M.S.E.E., University of Hawaii; Ph.D., University of California at Berkeley; Associate Professor of Electrical and Computer Engineering
- CHARLES HYDE: B.A., University of Massachusetts; M.A., Ph.D., University of Wisconsin; Assistant Professor of Science of Society
- FREDERICK W. HYDE, JR.: A.B., M.B., M.D., Wayne State University; Adjunct Associate Professor of Community Medicine
- G. EVANGELINE SHEIBLEY HYETT: B.A., Marygrove College; M.A., Catholic University of America; M.S.S.A., Western Reserve University; Associate Professor Emerita, School of Social Work
- ALLEN A. HYMAN: B.A., Albright College; M.A., Wharton School; Ph.D., University of Pennsylvania; Professor of Political Science
- MARVIN HYMAN: B.S., City College of New York; M.A., Ph.D., University of California at Berkeley; Adjunct Professor of Psychology
- FIKRY F. IBRAHIM: M.B., B.Ch., Cairo University; Clinical Instructor in Internal Medicine
- ELIZABETH ILKU: Diploma, Curtis Institute of Music; Adjunct Assistant Professor of Music
- SAMUEL INDENBAUM: B.S., M.D., Wayne State University; Assistant Professor of Internal Medicine
- HARRY INGBERG: B.A., University of Cincinnati; M.D., Cincinnati Medical School; Associate Professor of Physical Medicine and Rehabilitation
- JOHN A. INGOLD: B.S., M.D., University of Michigan; Clinical Assistant Professor of Surgery
- ANDRES INN: A.B., A.M., Ph.D., University of Illinois at Urbana; Assistant Professor of Psychology
- SUSUMU INOUE: M.D., Okayama University Medical School; Assistant Professor of Pediatrics
- ELSIE INSELMAN: B.M., Concordia College; M.M., Eastman School of Music; Adjunct Assistant Professor of Music
- SAMSON A. INWALD: B.S., Brooklyn College; D.O., Philadelphia College of Osteopathic Medicine; Clinical Instructor in Family Medicine
- CLAIRE C. IRWIN: B.A., M.A., University of Michigan; Ed.D., Wayne State University; Professor of Education
- HAMPTON H. IRWIN: B.A., University of Michigan; Professor Emeritus of Insurance
- JOHN M. IRWIN: B.S., Purdue University; M.A., Ph.D., Kansas University; Professor of Mathematics
- LOUIS N. IRWIN: B.A., Texas Tech University; Ph.D., University of Kansas; Assistant Professor of Physiology
- MARY S. IRWIN: B.A., University of Pittsburgh; B.S., Carnegie-Mellon University; M.S., Oklahoma State University; Associate Professor of Business Communication
- ELI M. ISAACS: B.S., City University of New York; M.D., State University of New York at Buffalo; Instructor in Gynecology and Obstetrics
- JO D. ISAACSON: A.B., M.D., M.S., University of Michigan; Clinical Assistant Professor of Ophthalmology
- DAVID ITKIN: B.S., University of Leige; M.D., University of Brussels; Clinical Instructor in Internal Medicine
- TAKASHI ITO: B.S., Ph.D., Hokkaido University; Professor of Mathematics
- JOEL B. ITZKOWITZ: A.B., City University of New York; A.M., Ph.D., University of Michigan; Assistant Professor of Greek and Latin
- MARIE IVERSON: B.S., Case Western Reserve University; M.S., University of Chicago; Adjunct Associate Professor of Nursing
- WILLIAM H. IVERSON, JR.: B.A., Capital University; M.S.W., University of Illinois; Director of Admissions and Student Services, Assistant Professor, School of Social Work
- SEIKICHI IZAWA: B.S., Ph.D., University of Tokyo; Professor of Biology
- RONALD M. IZBICKI: B.S., Long Island University; D.O., College of Osteopathic Medicine and Surgery; Assistant Professor of Oncology
- EVA M. JABLONOWSKI: B.S., University of Michigan; Instructor in Dance
- NICHOLAS JACKIW: M.D., University of Munich; Clinical Instructor in Radiology
- DONALD L. JACKSON: B.A., Cornell College; M.S., Ph.D., University of Kansas; Instructor in Physics
- FRANKLIN JACKSON: B.S., South Carolina University; M.D., Meharry Medical College; Clinical Assistant Professor of Surgery
- H. MERRILL JACKSON: A.B., Houghton College; A.M., Cornell University; Ph.D., University of Michigan; Professor of Social Science
- LAWRENCE E. JACKSON: M.D., University of Michigan; Assistant Professor of Psychiatry
- NEWTON L. P. JACKSON: B.A., University of California at Berkeley; M.A., Ph.D., University of Portland; Adjunct Assistant Professor of Psychology
- PHILIP J. JACKSON: M.D., Wayne State University; Clinical Instructor in Pediatrics
- PHILIP M. JACKSON: B.A., Colgate University; M.S.S.W., University of Louisville; Assistant Professor, School of Social Work
- WINSTON B. JACKSON: B.S., M.D., Howard University; Instructor in Neurology
- CHELLAMMA JACOB: S.B.C., Christian Medical College; M.S.N., Wayne State University; Assistant Professor of Nursing
- H. JOHN JACOB: B.A., University of Michigan; M.D., Wayne State University; Clinical Instructor in Otolaryngology
- DAVID I. JACOBS: B.A., University of Cincinnati; M.A., University of Texas; Instructor in Urban Humanities
- DAVID M. JACOBS: B.A., University of Michigan; M.D., Wayne State University; Clinical Instructor in Internal Medicine
- LLOYD A. JACOBS: A.B., Miami University; M.D., Johns Hopkins University; Clinical Instructor in Surgery
- WESLEY JACOBS: Adjunct Assistant Professor of Music
- HERBERT S. JACOBSON: B.S., A. & M. College of Texas; M.D., University of Texas; Clinical Instructor in Surgery
- LYLE F. JACOBSON: B.S., M.D., University of Minnesota; Clinical Associate Professor of Surgery
- DONALD J. JAFFAR: B.S., M.D., University of Michigan; Clinical Professor Emeritus of Urology
- HAROLD W. JAFFE: B.A., M.D., University of Michigan; Clinical Assistant Professor of Surgery

- PARIBORZ JAHANIAN: B.S.E.E., University of Washington; M.S.E.E., Ph.D., University of California at Berkeley; Assistant Professor of Electrical and Computer Engineering
- AGNES JAHRAUS: B.A., Jamestown College; M.A., Columbia University; Associate Professor of Nursing
- RAJ K. JAIN: B.A., Calcutta University; M.A., Jadavpur University; M.A., Delhi School of Economics; M.A., Miami University; Ph.D., Purdue University; Assistant Professor of Economics
- THELMA G. JAMES: B.A., M.A., University of Michigan; Professor Emerita of English
- THOMAS P. JAMES: B.S., Holy Cross College; M.D., University of Michigan; Clinical Instructor in Radiology
- ROBERT M. JAMISON: B.S., M.S., Purdue University; Professor Emeritus of Mechanical Engineering Sciences
- ROBERT S. JAMPPEL: A.B., M.D., Columbia College of Physicians and Surgeons; M.S., Ph.D., University of Michigan; Chairman and Professor of Ophthalmology
- SHERYL JANIEC: R.T., School of Radiation Therapy Technology, Henry Ford Hospital; Program Director and Instructor in Radiation Therapy Technology
- FREDERICK B. JANSEN: B.A., Carroll College; M.Div., Nashotah House Seminary; M.S.W., Wayne State University; Associate Professor, School of Social Work
- FRITZ JARDON: M.A., Munich School of Art and Science; Clinical Assistant Professor of Ophthalmology
- JAMES A. JARVIS: A.B., Union College; M.A., University of Kentucky; Ph.D., University of Illinois; Assistant Professor of Political Science
- JOSEPH J. JASPER: B.S., Michigan State College; M.S., University of Michigan; Ph.D., University of Chicago; Professor Emeritus of Chemistry
- JAMES M. JAY: A.B., Paine College; M.S., Ph.D., Ohio State University; Professor of Biology
- LOUISE M. JEFFERSON: B.A., Hunter College; M.A., Ph.D., University of Illinois; Associate Professor of French
- RONDO N. JEFFERY: B.S., M.S., Brigham Young University; Ph.D., University of Illinois; Assistant Professor of Physics
- BENJAMIN JEFFRIES: B.A., University of Michigan; M.D., Wayne State University; Clinical Professor of Psychiatry
- CHARLES D. JEFFRIES: B.S., North Georgia College; M.S., Ph.D., University of Tennessee; Assistant Dean of the School of Medicine and Professor of Immunology and Microbiology
- SIDNEY B. JEKINS: A.B., Temple University; M.D., Howard University; Clinical Associate Professor of Psychiatry
- WILLIAM JEND, JR.: B.A., Albion College; M.D., University of Michigan; Adjunct Assistant Professor of Occupational and Environmental Health
- BARBARA J. JENKINS: B.S., University of Michigan; M.D., Wayne State University; Associate Professor of Pathology
- WILLIAM O. JENKINS, JR.: B.A., Rice University; M.A., Ph.D., University of Wisconsin; Assistant Professor of Political Science
- CHARLES G. JENNINGS: B.A., University of Michigan; M.D., Harvard Medical School; Assistant Professor (FTA) of Pediatrics
- VIGGO W. JENSEN: B.S., Illinois College; M.D., University of Michigan; Clinical Associate Professor of Psychiatry
- RAM JETHMALANI: LL.M., University of Bombay; Professor (Visiting) of Law
- SHARON JETTE: B.S., State University of New York; M.P.H., University of Michigan; Instructor in Nursing
- WILLIAM H. JEVONS: B.S., M.D., Wayne State University; Clinical Assistant Professor of Gynecology and Obstetrics
- MARVIN R. JEWELL: B.A., DePann University; M.D., University of Michigan; Assistant Professor (FTA) of Anesthesiology
- PATRICK F. JEWELL: M.D., University of Michigan; Clinical Assistant Professor of Surgery
- OTTO A. JISKRA: B.S., M.A., Ohio State University; Associate Professor of Education
- LOYAL W. JODAR: M.D., Wayne State University; Clinical Associate Professor of Orthopedic Surgery
- MALCOM M. JOHNS: B.M., Oberlin Conservatory of Music; M.M., Wayne State University; Professor of Music
- ARTHUR L. JOHNSON: B.A., Morehouse College; M.A., Atlanta University; Vice President for University Relations and Professor of Education
- CARL R. JOHNSON: B.S., Medical College of Virginia; Ph.D., University of Illinois; Professor of Chemistry
- CHRISTOPHER H. JOHNSON: B.A., Wabash College; M.A., Ph.D., University of Wisconsin; Associate Professor of History
- DORIS V. JOHNSON: B.S., M.S., M.A., Ph.D., University of Michigan; Chairman of Slavic Languages and Literatures and Assistant Professor of Russian
- H. WEBSTER JOHNSON: A.B., M.B.A., University of Michigan; Ph.D., Ohio State University; Professor Emeritus of Marketing
- JAMES K. JOHNSON: B.S., Wayne State University; M.D., Meharry Medical College; Clinical Instructor in Otolaryngology
- JEAN JOHNSON: B.S., Kansas State University; M.S.N., Yale University; Ph.D., University of Wisconsin; Professor of Nursing
- MARGARET JOHNSON: B.S.N., St. Louis University; M.S.N., Wayne State University; Assistant Professor of Nursing
- NORRIS B. JOHNSON: B.A., M.A., Michigan State University; M.A., University of Michigan; Instructor in Urban Humanities
- PAUL H. JOHNSON: B.A., Ph.D., State University of New York; Assistant Professor of Biochemistry
- ROBERT M. JOHNSON: B.A., Fordham College; Ph.D., Columbia University; Assistant Professor of Biochemistry
- TOMMIE U. JOHNSON: B.S., M.Ed., Ed.D., Wayne State University; Assistant Professor of Education
- WALLACE E. JOHNSON: B.A., M.D., Wayne State University; Clinical Instructor in Orthopedic Surgery
- WILTON J. JOHNSON III: B.A., Millsaps College; J.D., University of Mississippi; Instructor in Law
- RAY E. JOHNSTON: B.A., Sacramento State College; M.A., University of Wyoming; Ph.D., University of Oregon; Associate Professor of Political Science
- KAREN JOHNSTONE: B.A., Albion College; Adjunct Instructor in Physical Therapy
- FRANK BLAINE JOLLEY: B.A., College of Idaho; M.D., University of Bazel; Instructor in Physical Medicine and Rehabilitation
- DAVID W. JONAH: B.S., M.S., Purdue University; Ph.D., Brown University; Associate Professor of Mathematics
- CECIL R. JONAS: B.S., Howard University; M.D., George Washington University; Clinical Instructor in Gynecology and Obstetrics
- ALFRED W. JONES: B.A., M.A., Ph.D., Columbia University; Professor of Industrial Engineering and Operations Research
- ARNOLD M. JONES: B.S., University of Michigan; M.D., Meharry Medical College; Assistant Professor of Surgery
- BRYAN D. JONES: B.A., University of Alabama; Ph.D., University of Texas at Austin; Associate Professor of Political Science
- DON P. JONES: A.B., Williams College; M.D., University of Michigan; Professor of Internal Medicine
- G. RICHARD JONES: A.B., Washington and Jefferson College; M.D., Temple University; Clinical Associate Professor of Orthopedic Surgery
- JOYCE A. JONES: B.A., Miami University, Ohio; M.S.W., Wayne State University; Assistant Professor, School of Social Work
- LILY A. JONES: B.A., M.S., Ph.D., University of Minnesota; Assistant Professor of Immunology and Microbiology
- LORETTA B. JONES: B.A., M.A., University of Michigan; Assistant Professor of Education
- ROBERT JONES: Adjunct Assistant Professor of Music
- SYLVESTER JONES: B.S.C.E., Lawrence Institute of Technology; M.U.P., Wayne State University; Adjunct Faculty in Urban Planning
- THADDEUS H. JOOS: M.D., University of Michigan; Clinical Assistant Professor of Pediatrics
- BEN W. JORDAN: B.S., M.S., Memphis State University; Ed.D., Wayne State University; Professor of Education
- WILLIAM M. JORDAN, JR.: B.A., Lincoln University; M.A., University of Pennsylvania; M.S.W., Howard University; Assistant Professor of Social Science
- JACOB JORNE: B.S., M.S., Israel Institute of Technology; Ph.D., University of California at Berkeley; Associate Professor of Chemical and Metallurgical Engineering
- MARIE JOSBERGER: B.S., Florida State University; M.S., Ed.D., Indiana University; Associate Dean of the College of Nursing and Associate Professor of Nursing
- MYRON H. JOYRICH: B.S., M.D., Wayne State University; Clinical Instructor in Radiology

BENEDICT M. JOZEFOWICZ: B.A., University of Michigan, Dearborn; M.A., Wayne State University; Instructor in Social Science

BENJAMIN JULIAR: B.A., University of Michigan; M.D., Wayne State University; Clinical Associate Professor of Internal Medicine

CHARLOTTE W. JUNGE: Ph.D., Professor Emerita of Education

URBAN R. JUPENA: B.F.A., Philadelphia College of Art; M.F.A., Cranbrook Academy of Art; Assistant Professor of Art

JOHN JUSKEVICH: A.A., Thornton Junior College; M.S., Ph.D., University of Chicago; Associate Professor of Science and Technology

MERRIE JEAN KAAS: B.S.N., M.S.N., Wayne State University; Instructor in Nursing

GEORGE KADIAN: B.S., M.D., University of Michigan; Clinical Assistant Professor of Internal Medicine

ALI KAFI: M.D., University of Tehran; Clinical Assistant Professor of Surgery

EVA KAHANA: B.A., Stern College for Women; M.A., City College of New York; Ph.D., University of Chicago; Professor of Sociology

MARK L. KAHN: B.A., Columbia University; M.A., Ph.D., Harvard University; Professor of Economics

HENRY D. KAINE: B.S., University of Michigan; M.D., Wayne State University; Clinical Associate Professor of Internal Medicine

GEORGE J. KALDOR: M.D., Eotvos Lorand University of Medical Sciences; Professor of Pathology

NATHAN KALICHMAN: B.Sc., M.D., McGill University; Clinical Assistant Professor of Psychiatry

ANGELOS A. KAMBOURIS: M.D., National University of Athens; Clinical Associate Professor of Surgery

MICHAEL KAN: B.A., Columbia University; M.F.A., State University of New York at Alfred; M.A., M. Phil., Columbia University; Adjunct Professor of Art

SHIN-YOUNG KANG: M.D., Yonsei University; Clinical Instructor in Orthopedic Surgery

SHELDON M. KANTOR: M.D., Wayne State University; Clinical Assistant Professor of Internal Medicine

ADRIAN KANTROWITZ: A.B., New York University; M.D., Long Island College of Medicine; Professor of Surgery

GEORGE W. KANTZLER: D.O., Chicago College of Osteopathic Medicine; Clinical Instructor in Psychiatry

DONALD I. KAPETANSKY: B.S., M.D., University of Michigan; Clinical Assistant Professor of Surgery and Adjunct Associate Professor of Speech

BERNICE A. KAPLAN: B.A., Hunter College; M.A., Ph.D., University of Chicago; Associate Professor of Anthropology

JOSEPH KAPLAN: B.A., New York University; M.D., Johns Hopkins University; Associate Professor of Pediatrics

KALMAN J. KAPLAN: A.B., Northwestern University; A.M., Ph.D., University of Illinois at Urbana; Associate Professor of Psychology

LEONARD KAPLAN: B.S., State University of New York at Buffalo; M.A., Columbia University; Ed.D., University of Rochester; Head of the Division of Teacher Education and Professor of Education

MELISSA G. KAPLAN: B.A., University of North Carolina; M.A., Ph.D., University of Illinois; Assistant Professor of Family and Consumer Resources

KAILASH C. KAPUR: M.Tech., Indian Institute of Technology; M.S., Ph.D., University of California at Berkeley; Associate Professor of Industrial Engineering and Operations Research

RABBI MAX KAPUSTIN: M.A., Ph.D., University of Heidelberg; Adjunct Professor of Near East and Asian Studies

RAYMOND E. KARCHER: B.S., John Carroll University; Ph.D., Purdue University; Adjunct Instructor in Biochemistry

ASHOK KARNIK: M.B.B.S., University of Delhi; Assistant Professor of Internal Medicine

DALE H. KARWEIK: B.S., University of Wisconsin at Milwaukee; Ph.D., Purdue University; Assistant Professor of Chemistry

MINUCHEHR KASHEP: M.D., Pahlavi University; Clinical Instructor in Gynecology and Obstetrics

MORRIS W. KATZ: B.A., McMaster University; M.A., Ph.D., University of Illinois; Associate Professor of Mathematics

STUART A. KATZ: B.A., Wayne State University; M.D., University of Michigan; Clinical Instructor in Orthopedic Surgery

CLIFFORD L. KAUFMAN: B.A., Reed College; M.A., Ph.D., University of Oregon; Associate Professor of Political Science

JACK M. KAUFMAN: B.S., M.D., Wayne State University; Clinical Professor of Internal Medicine

LOUIS W. KAUFMAN: A.B., M.D., University of Michigan; Clinical Associate Professor of Surgery

WALTER E. KAUPPILA: B.S., Michigan Technological University; Ph.D., University of Pittsburgh; Assistant Professor of Physics

SHERMAN KAY: B.A., Wayne State University; M.D., University of Michigan; Clinical Assistant Professor of Internal Medicine

JOSEPHINE N. KEAL: A.B., M.A., University of Michigan; Assistant Professor Emerita of English

VAN O. KEELER: B.S., M.D., Wayne State University; Clinical Instructor in Family Medicine

THOMAS W. KEISER: B.A., M.A., Ph.D., Wayne State University; Adjunct Assistant Professor of Psychology

JAMES J. KELLEHER: B.S., Massachusetts Institute of Technology; Ph.D., University of Illinois; Associate Professor of Mathematics

FRED KELLERMEIER: Ph.B., University of Detroit; M.A., University of Toledo; Instructor in Urban Humanities

THOMAS M. KELLEY: B.A., M.A., Ph.D., Wayne State University; Assistant Professor of Criminal Justice

JOHN K. KELLY: B.A., Seton Hall University; D.O., Kirksville College of Osteopathic Medicine; Clinical Instructor in Radiology

MAURICE B. KELMAN: B.A., J.D., Wayne State University; LL.M., Harvard University; Professor of Law

PATRICK F. KENEALY: B.S., Loyola University; Ph.D., University of Notre Dame; Associate Professor of Physics

JAMES M. KENNARY, JR.: B.S., University of Detroit; M.D., Wayne State University; Clinical Instructor in Internal Medicine

VERNAL H. KENNER: B.S., M.S., Ph.D., University of California; Associate Professor of Mechanical Engineering

ELIZABETH KENT: A.B., Spelman College; B.S., St. Phillip School Medical College of Virginia; M.P.H., Ph.D., University of Michigan; Adjunct Assistant Professor of Nursing

AUGUST F. KERBER: B.A., M.A., Ed.D., Wayne State University; Professor of Education

MICHAEL KERESZTESI: B.A., M.A.L.S., University of Michigan; M.A., Eastern Michigan University; Assistant Professor of Education

EDWARD J. KERFOOT: B.S., Detroit Institute of Technology; M.S., Ph.D., Wayne State University; Adjunct Assistant Professor of Occupational and Environmental Health

CHERYL A. KERNS: B.A., Duke University; M.D., George Washington University; Instructor in Pediatrics

EDWIN C. KERR: M.D., University of Michigan; Clinical Instructor in Internal Medicine

DAVID H. KESSEL: B.S., Massachusetts Institute of Technology; M.S., Ph.D., University of Michigan; Professor of Pharmacology and Oncology

KARL J. KESSEL: M.D., Johannes Gutenberg University; Clinical Instructor in Internal Medicine

CHARLES KESSLER: B.A., M.D., University of Virginia; Clinical Instructor in Urology

LARRY KEVAN: B.S., University of Kansas; Ph.D., University of California at Los Angeles; Professor of Chemistry

DOUGLAS P. KEVORKIAN: B.A., University of Rhode Island; M.A., Ph.D., University of Michigan; Instructor in English

SNEHAMAY KHASNABIS: B.E., University of Calcutta; M.C.E., Ph.D., North Carolina State University; Assistant Professor of Civil Engineering

M. RIAD KHATIB: P.C.B., M.D., Damascus University; Assistant Professor of Internal Medicine

JAMIL KHEDER: M.B., Ch.B., Baghdad University; M.M.Sc., Ohio State University; Clinical Instructor in Pediatrics

PREM KHILANANI: B.Sc., M.D., University of Karachi; Assistant Professor of Oncology

LOUIS KIBLER: B.A., Ph.D., Indiana University; Associate Professor of Italian

- AVANELLE KIDWELL: B.A., Berea College; M.A., Ohio State University; Assistant Professor of Health and Physical Education
- DEMETRIOS KIKAS: M.D., University of Athens; Instructor in Neurology
- HEUNG KI KIM: M.D., Yonsei University; Clinical Instructor in Radiology
- KYUNG S. KIM: M.D., Kyungpook National University; Clinical Instructor in Internal Medicine
- YEONG WOOK KIM: B.S., M.S., Seoul National University; Ph.D., Brown University; Professor of Physics
- TOKUJI KIMURA: B.S., Ph.D., Osaka University; Professor of Chemistry
- ALBERT I. KING: B.S., University of Hong Kong; M.S., Ph.D., Wayne State University; Professor of Mechanical Engineering
- JOHN R. KING: B.S., B.M., M.D., University of Minnesota; M.S., Wayne University; Clinical Assistant Professor of Dermatology and Syphilology
- MONROE J. KING: D.O., Chicago College of Osteopathic Medicine; Clinical Instructor in Family Medicine
- TERRANCE KING: A.B., Lemoyne College; M.A., Wayne State University; Ph.D., University of Michigan; Assistant Professor of English
- BRADLEY E. KINGERY: B.A., Southwest Minnesota State College; M.S., University of Colorado; Instructor in Health and Physical Education
- JOYCE W. KINGSLEY: B.S., Middlebury College; M.D., University of Vermont; Clinical Instructor in Internal Medicine
- VITHAL KINHAL: B.Sc., M.D., Osmania University; Assistant Professor of Internal Medicine
- V. EVERETT KINSEY: B.S., Ph.D., University of Pittsburgh; Clinical Professor of Ophthalmology
- ALBERT W. KIRBY: B.S., University of Michigan; Ph.D., Northwestern University; Clinical Instructor in Ophthalmology
- JOHN R. KIRKPATRICK: B.A., Dartmouth College; M.D., University of Tennessee; Associate Professor of Surgery
- STANLEY KIRSCHNER: B.S., Brooklyn College; A.M., Harvard University; Ph.D., University of Illinois; Professor of Chemistry
- WILLIAM B. KIRTLAND, JR.: B.A., Oberline College; M.B., M.D., Wayne State University; Associate Professor of Gynecology and Obstetrics
- STEPHEN T. KITAI: B.S., University of Michigan; M.A., Ph.D., Wayne State University; Professor of Anatomy; Adjunct Professor of Biology and Adjunct Professor of Psychology
- KAREL KITHIER: M.D., Ph.D., Charles University, Prague; Assistant Professor of Pathology
- ALAN C. KLAAS: Concordia Teachers College; M.S., Ph.D., Southern Illinois University; Assistant Professor of Education
- BARBARA KLARMAN: A.B., Barnard College; M.A., Columbia University; J.D., Wayne State University; Instructor in Law
- EDWARD L. KLARMAN: B.A., M.D., Wayne State University; Clinical Instructor in Psychiatry
- ARTHUR KLASS: B.A., University of Rochester; M.D., University of Buffalo; Clinical Instructor in Internal Medicine
- ALFRED A. KLEIN: B.S., M.D., Wayne State University; Clinical Assistant Professor of Internal Medicine
- GEORGE KLEIN: B.A., M.A., San Diego State College; Ph.D., University of Oregon; Assistant Professor of Urban Humanities
- HERMAN KLEIN: M.D., Wayne State University; Clinical Assistant Professor of Internal Medicine
- JULIE KLEIN: B.A., M.A., D.A., Ph.D., University of Oregon; Assistant Professor of Urban Humanities
- LEON R. KLEIN: B.S., Armstrong College; M.B.A., Ph.D., Ohio State University; Associate Professor of Marketing
- MARVIN E. KLEIN: M.D., University of Michigan; Clinical Instructor in Dermatology and Syphilology
- SANDER KLEIN: B.S., M.D., Wayne State University; Clinical Associate Professor of Internal Medicine
- GERALD W. KLEIS: B.S., University of Michigan; Ph.D., Michigan State University; Assistant Professor of Anthropology
- KENNETH A. KLINE: B.S., Ph.D., University of Minnesota; Professor of Mechanical Engineering
- GEORGE A. KLING: M.D., University of Michigan; Clinical Assistant Professor of Radiology
- VALERIE KLINGE: B.A., Smith College; M.A., Connecticut College; Ph.D., State University of New York at Stony Brook; Adjunct Associate Professor of Psychology
- CASSANDRA KLYMAN: B.A., Barnard College; M.D., University of Michigan; Clinical Assistant Professor of Psychiatry
- ROSEMARY KNAPP: B.S.N., M.S.N., Wayne State University; Assistant Professor of Nursing
- H. ALLAN KNAPPENBERGER: B.S.I.E., M.S.I.E., Pennsylvania State University; Ph.D., North Carolina State University; Professor of Industrial Engineering and Operations Research
- THOMAS C. KNECHTGES: A.B., University of Detroit; M.D., St. Louis University; Assistant Professor of Pathology
- SIDNEY D. KOBERNICK: B.Sc., M.Sc., M.D., Ph.D., McGill University; Clinical Associate Professor of Pathology
- JOSEF M. KOBILJAK: M.D., University of Heidelberg; Assistant Professor (FTA) of Pediatrics
- DOUGLASS V. KOCH: B.S., Notre Dame University; M.B.A., University of Nevada; Ph.D., University of Michigan; Assistant Professor of Management
- JEFFERY D. KOCISIS: B.Ph., Ph.D., Wayne State University; Assistant Professor of Anatomy
- HANS J. KOEK: M.D., University of Leyden; Clinical Instructor in Family Medicine
- ANN L. KOEN: B.S., University of Detroit; M.S., Ph.D., Wayne State University; Associate Professor of Gynecology and Obstetrics
- FRANK M. KOEN: A.B., Mercer University; M.A., Ph.D., Vanderbilt University; Adjunct Associate Professor of Psychology
- MILTON G. KOENIG: B.S., M.S., Wayne State University; Associate Professor of Mechanical Engineering
- ARSENIA KOH-GUEVARRA: M.D., University of Santo Tomas; Clinical Instructor in Internal Medicine
- LEIGHTON N. KONG: A.B., M.D., University of Michigan; Clinical Instructor in Pathology
- YI-CHI M. KONG: B.A., Wellesley College; M.S., Ph.D., University of Michigan; Associate Professor of Immunology and Microbiology
- MILDRED KONLANDE: B.S., M.A., Columbia University; Associate Professor of Nursing
- EDWARD T. KONNO: M.D., Ph.D., Tohoku University; Clinical Assistant Professor of Pathology
- MARC W. KONVISSER: B.A., Rutgers University; M.S., Ph.D., Ohio State University; Associate Professor of Mathematics
- PAUL A. KOONTER: Th.B., Northern Baptist Theological Seminary; M.S.W., Wayne State University; Associate Professor, School of Social Work
- MARCIA KOPACZ: B.S.N., Michigan State University; M.S.N., Wayne State University; Adjunct Assistant Professor of Nursing
- MARGIT KORMENDY: Certificate, Budapest Liszt Academy of Music; Adjunct Assistant Professor of Music
- ARTHUR KORNHAUSER: B.S., University of Pittsburgh; M.A., Carnegie-Mellon University; Ph.D., University of Chicago; Professor Emeritus of Psychology
- SANFORD KORNWISE: M.D., Wayne State University; Clinical Instructor in Dermatology and Syphilology
- HERMAN K. KOSCHNITZKE: B.M., B.S., M.D., M.S., University of Minnesota; Clinical Instructor in Internal Medicine
- THEODORE A. KOTILA: B.A., M.B.A., University of Michigan; M.A., Ph.D., Wayne State University; Assistant Professor of Social Science
- MISCHA KOTTLER: Diploma, Kiev Conservatory of Music; Adjunct Professor of Music
- JOHN KOTWICK: B.S., M.S., Wayne State University; Adjunct Instructor in Physical Therapy
- JACOB S. KOUNIN: B.A., M.A., Western Reserve University; Ph.D., University of Iowa; Professor of Education
- CHRISTINE KOVNER: B.S., Columbia University; M.S., University of Pennsylvania; Instructor in Nursing
- JOHN J. KOWALESKI: B.A., M.D., Wayne State University; Assistant Professor of Family Medicine
- MICHAEL C. KOZONIS: M.D., University of Michigan; Clinical Assistant Professor of Internal Medicine
- KENNETH L. KRABBENHOFF: B.A., M.D., University of Iowa; Chairman and Professor of Radiology

BERNARD KRAKAUER: M.D., University of Toronto; Clinical Assistant Professor of Orthopedic Surgery
JOSEPH S. KRAKAUER: A.B., M.D., New York University College of Medicine; Assistant Professor of Surgery
GALE KRAMER: B.A., Oberlin College; M.M., Syracuse University; D.M.A., University of Michigan
AARON KRASNER: B.S., M.S.W., Washington University; Associate Professor, School of Social Work
LUCJAN KRAUSE: B.S., University of London; Ph.D., University of Toronto; D.Sc., University of London; Adjunct Professor of Engineering
HERBERT I. KRICKSTEIN: A.B., M.D., University of Michigan; Clinical Assistant Professor of Pathology
JOEL KRIEGEL: B.A., M.D., Wayne State University; Clinical Instructor in Urology
BRUCE L. KRIEGER: A.B., Columbia University; M.D., State University of Iowa; Clinical Instructor in Dermatology and Syphilology
INGEBORG KRIEGER: M.D., Medical School University of Heidelberg and University of Freiburg; Professor of Pediatrics
KARL T. KRISTEN: B.A., Albion College; M.D., Wayne State University; Clinical Assistant Professor of Radiology
K. H. E. KROEMER: B.S., M.S., D.Eng., Technical University, Hannover; Professor of Industrial Engineering and Operations Research
RONALD L. KROME: B.S., M.D., University of Maryland; Associate Professor of Surgery
R. LAWRENCE KROOVAND: B.S., M.D., University of Cincinnati; Assistant Professor of Urology
LAWRENCE KRUGEL: M.D., University of Michigan; Clinical Assistant Professor of Dermatology and Syphilology
MARC KRUMAN: B.A., Cornell University; M.A., Yale University; Instructor in History
JAMES M. KUHLMAN: B.A., University of Michigan; M.D., George Washington University; Clinical Instructor in Radiology
WALTER F. KUJAWSKI: M.D., Wayne State University; Clinical Assistant Professor of Internal Medicine
G. KRISHNA KUMAR: M.D., Madras Medical College; Clinical Associate Professor of Internal Medicine
K. M. DRUVA KUMAR: M.B.B.S., Government Medical College, Mysore, India; Instructor in Psychiatry
RALPH H. KUMMLER: B.S., Rensselaer Polytechnic Institute; Ph.D., Johns Hopkins University; Chairman and Professor of Chemical Engineering and Metallurgical Engineering
HUI-HSIUNG KUO: B.A., Taiwan University; M.A., Ph.D., Cornell University; Associate Professor of Mathematics
PAO-KUANG KUO: B.S., National Taiwan University; Ph.D., University of Minnesota; Associate Professor of Physics
STANLEY KUPINSKY: B.A., Yeshiva University; M.A., Ph.D., Brown University; Assistant Professor of Sociology
CATHERINE KUREK-OVSHINSKY: B.S.N., Alverno College; M.S.N., Wayne State University; Instructor in Nursing
RUBEN KURNETZ: B.S., M.D., University of Michigan; Clinical Assistant Professor of Pediatrics
RAYMOND S. KURTZMAN: B.A., M.D., University of Michigan; Professor of Radiology
BOHDAN J. KUSHNIR: Diploma, State Academy of Music, Vienna; Ph.D., Friedrich Alexander University; Associate Professor of Music
DEBORAH A. KUTNER: B.S., Longwood College; M.S., Indiana University; Instructor in Health and Physical Education
MYRON M. LABAN: B.A., M.D., University of Michigan; Clinical Instructor in Physical Medicine and Rehabilitation
JAMES LABES: B.A., University of Michigan; M.D., University of Illinois; Clinical Instructor in Gynecology and Obstetrics
GISELA LABOUVIE-VIEF: B.S., University of Saarland; Ph.D., West Virginia University; Associate Professor of Psychology
JOSEPH A. LABUTA: B.M.E., Central College; M.E., University of Missouri; Ed.D., University of Illinois; Associate Chairman and Professor of Music
BETTE H. LACHAPPELLE: B.S., M.Ed., Wayne State University; Associate Professor of Education
DAVID LACHAR: B.A., Wayne State University; Ph.D., University of Minnesota; Adjunct Associate Professor of Psychology
SHELDON J. LACHMAN: B.S., M.S., Ph.D., University of Michigan; Professor of Psychology
OSCAR LAGASSE: Adjunct Assistant Professor of Music
KAMALESH LAHIRI: M.B.B.S., Calcutta Medical College; M.D., All India Institute of Medical Sciences; M.A.M.S., Academy of Medical Sciences, India; Clinical Assistant Professor of Internal Medicine
JOSEPH J. LAHOOD: B.S., M.D., Georgetown University; Clinical Instructor in Orthopedic Surgery
ELLEN J. LAING: A.A., Stephens College; B.A., University of Missouri; M.A., University of Wisconsin; Ph.D., University of Michigan; Associate Professor of Art History
ROLAND T. LAKEY: M.S., Dean Emeritus of the College of Pharmacy
DEMETRIUS P. LALAS: A.B., Hamilton College; M.E., Ph.D., Cornell University; Associate Professor of Mechanical Engineering
JOHN H. LAMB, JR.: B.S.C.E., M.S.C.E., Ph.D., University of Illinois; Chairman and Associate Professor of Civil Engineering
LEONARD R. LAMBERSON: B.M.E., General Motors Institute; M.S.I.E., North Carolina State University; Ph.D., Texas A & M University; Associate Professor of Industrial Engineering and Operations Research
SUSAN LAMBETH: B.F.A., East Carolina University; M.F.A., Smith College; Instructor in Speech
LEROY LAMBORN: A.B., Oberlin College; LL.B., Western Reserve University; LL.M., Yale University; J.S.D., Columbia University; Professor of Law
ROSE LAMMEL: Ed.D., Professor Emerita of Education
ALICE E. LAMONT: B.A., Marygrove College; M.S.S.S., Fordham University; Associate Professor, School of Social Work
RICHARD L. LAMONT: B.S., University of Michigan; M.D., Wayne State University; Clinical Assistant Professor of Orthopedic Surgery
RICARDO H. LANDABURU: Pharmacist, Blochemist, Universidad Nacional de Cordoba; Associate Professor of Physiology
LEON A. LANDE: B.A., North Dakota State Teachers College; B.S., University of Minnesota; M.S., University of North Dakota; Ed.D., University of Michigan; Professor of Health and Physical Education
MAURICIO A. LANDE: Ph.D., University of Litoral; Assistant Professor of Anatomy
JAMES W. LANDERS: B.S., M.D., University of Nebraska; Clinical Associate Professor of Pathology
E. FREDERICK LANG: B.A., M.D., University of Michigan; Clinical Associate Professor of Radiology
CRYSTAL LANGE: B.S.N., University of Michigan; M.S.N., Wayne State University; Ph.D., Michigan State University; Adjunct Associate Professor of Nursing
WILLIAM A. LANGE: B.S., B.A., M.B., M.D., University of Minnesota; Clinical Associate Professor of Surgery
HARRY M. LANGSFORD: B.S., M.A., Wayne State University; Ph.D., Michigan State University; Professor of Music
JOHN D. LANGSTON: B.A., Oberlin College; M.D., Jefferson Medical College; Clinical Associate Professor of Pathology
FRANK W. LANHAM: B.Ed., Illinois State Normal; M.A., Ph.D., University of Michigan; Professor of Education
GEOFFREY J. LANNING: B.A., LL.B., Harvard University; Professor of Law
DANTE J. LANZETTA: A.B., Brown University; M.A., University of Chicago; Instructor in English
CHARLES J. LAPP: B.S., M.D., Wayne State University; Clinical Instructor in Family Medicine
ALFRED M. LARGE: B.A., M.D., University of Toronto; Clinical Associate Professor of Surgery
ROBERT D. LARSEN: M.D., University of Michigan; Clinical Associate Professor of Surgery
MIRIAM T. LARSON: B.A., M.S.L.S., Middlebury College; Associate Professor of Education
GABRIEL W. LASKER: A.B., University of Michigan; M.A., Ph.D., Harvard University; Professor of Anatomy
JACOB LASSNER: A.B., University of Michigan; M.A., Brandeis University; Ph.D., Yale University; Chairman and Professor of Near East and Asian Studies
ANDRE G. LAURENT: Ph.D., Ecole Nationale Supérieure Des Mines, France; Professor of Mathematics

- CARL LAUTER: B.A., M.D., Wayne State University; Assistant Professor of Internal Medicine
- DAVID M. LAWSON: B.S., M.S., Virginia Polytechnic Institute; Ph.D., Cornell University; Assistant Professor of Physiology
- JEROME C. LAWSON: B.A., Saint Ambrose College; Ph.D., University of Notre Dame; Assistant Professor of Physics
- NOEL S. LAWSON: B.Sc., Ohio State University; M.D., Wayne State University; Clinical Assistant Professor of Pathology
- ROBERT F. LAWSON: B.S., M.A., Wayne State University; Chairman and Professor of Music
- MORTON R. LAZAR: B.A., Wayne State University; M.D., University of Michigan; Clinical Assistant Professor of Gynecology and Obstetrics
- ROBERT B. LEACH: B.S., University of Toledo; M.D., Wayne State University; Clinical Assistant Professor of Internal Medicine
- CHARLES N. LEBEAUX: B.A., Dartmouth College; M.S.W., Ph.D., University of Michigan; Professor, School of Social Work
- NORMAN A. LEBEL: A.B., Bowdoin College; Ph.D., Massachusetts Institute of Technology; Chairman and Professor of Chemistry
- MARIANN LEBER: B.S., Wayne State University; Adjunct Instructor in Nursing
- ANNA M. LEDGERWOOD: B.A., Gonzaga University; M.D., Marquette University School of Medicine; Associate Professor of Surgery
- CHENG-CHONG LEE: B.S., Taiwan University; M.D., National Taiwan University; Clinical Instructor in Internal Medicine
- CHUAN-PU LEE: B.S., National Taiwan University; Ph.D., Oregon State University; Professor of Biochemistry
- HAHN J. LEE: M.D., Seoul National University; Clinical Instructor in Internal Medicine
- JAI YOUNG LEE: M.D., Seoul National University; Instructor in Pathology
- JOHN J. LEE: Ph.D., LL.D., Distinguished Professor Emeritus of Education
- JU PEI LEE: B.Sc., National Wu-Han University; S.M., Massachusetts Institute of Technology; Ph.D., University of Michigan; Professor of Mechanical Engineering
- RICHARD M. LEE: B.S., University of Michigan; M.S., Ph.D., University of Maryland; Adjunct Associate Professor of Psychology
- GENE A. LEEB: B.S., Indiana University; M.B.A., Northwestern University; Assistant Professor of Accounting
- CHARLES B. LEFFERT: B.S., Purdue University; M.S., University of Pittsburgh; Ph.D., Wayne State University; Director of the College of Engineering Energy Center and Associate Professor of Chemical and Metallurgical Engineering
- RUBEN LEGASPI: B.S., M.D., University of the Philippines; Assistant Professor of Internal Medicine
- LYLA J. LEIPZIG: A.B., Ph.D., Wayne State University; M.D., University of Michigan; Clinical Assistant Professor of Internal Medicine
- WILLIAM R. LEITH: B.S., Western Michigan University; M.S., Ph.D., Purdue University; Professor of Speech
- BRUCE T. LEITMAN: B.A., University of Michigan; J.D., Harvard University; Adjunct Professor of Law
- SANDRA M. LEITNER: B.S., University of Toledo; M.D., University of Michigan; Clinical Instructor in Internal Medicine
- LOUIS S. LELAND: B.S., University of Detroit; M.S., Wayne State University; Clinical Associate Professor of Dermatology and Syphilology
- SOL LELAND: B.A., M.D., Wayne State University; Associate Professor of Family Medicine
- ANDREW S. LELEK: M.S., Ph.D., University of Wroclaw; Professor of Mathematics
- JIMMIE LELESZI: B.S., Wayne State University; D.O., Chicago College of Osteopathic Medicine; Instructor in Psychiatry
- CHARLOTTE LEMKE: M.A., Wayne State University; Associate Professor of French
- JOSEPH E. LENZO: B.S., City College of New York; M.D., State University of New York; Clinical Associate Professor of Psychiatry
- MYRON A. LEON: B.S., Ph.D., Columbia University; Professor of Immunology and Microbiology
- DELORES V. LEONARD: B.S., M.A., Wayne State University; Instructor in Education
- GEORGE E. LEONARD: B.S., Massachusetts State College; M.A., Ed.D., Columbia University; Professor of Education
- LEONARD LEONE: B.A., M.A., Wayne State University; Distinguished Professor of Speech
- SARA E. LEOPOLD: A.B., M.A., Ph.D., Wayne State University; Professor of Humanities
- CECIL W. LEPARD: A.B., M.D., University of Michigan; Clinical Professor of Ophthalmology
- EDWARD S. LERCHIN: B.S., M.D., Wayne State University; Clinical Instructor of Dermatology and Syphilology
- A. MARTIN LERNER: B.A., M.D., Washington University; Professor of Internal Medicine
- LEONARD H. LERNER: B.S., Bates College; M.D., Marquette University; Clinical Assistant Professor of Ophthalmology
- PAUL R. LESSEM: B.A., M.D., Wayne State University; Clinical Instructor in Psychiatry
- JOAN K. LESSEN-FIRESTONE: B.A., University of Michigan; M.A., Ph.D., Wayne State University; Assistant Professor of Psychology
- KRISTINE LESSINS: B.A., M.A., Wayne State University; Instructor in Social Science
- GERALD S. LEVENTHAL: B.A., Queens College, City University of New York; Ph. D., Duke University; Professor of Psychology
- DAVID LEVEY: B.A., University of Chicago; M.A., Harvard University; Assistant Professor of Social Science
- WALTER G. LEVICK: B.Sc., Assumption University; M.D., University of Ottawa; Clinical Instructor in Psychiatry
- DON LEVIN: B.A., Oakland University; M.A., University of Detroit; Instructor in English
- HERBERT G. LEVIN: B.A., Wayne State University; M.D., University of Michigan; Clinical Assistant Professor of Internal Medicine
- JAY H. LEVIN: B.A., University of Pittsburgh; M.A., Ph.D., University of Michigan; Associate Professor of Economics
- MURRAY B. LEVIN: M.D., Wayne State University; Clinical Instructor in Internal Medicine
- SAMUEL J. LEVIN: M.D., University of Toronto; Clinical Professor of Pediatrics
- BERNARD B. LEVINE: A.B., Harvard University; M.S.L.S., Simmons College; Ph.D., Brown University; Associate Professor of English
- BRUCE LEVINE: B.A., University of Michigan; M.A., University of Rochester; Instructor in Social Science
- LAURENCE LEVINE: B.A., New York University; M.A., Ph.D., University of Wisconsin; Professor of Biology
- ROBERT S. LEVINE: B.A., University of Michigan; M.D., Wayne State University; Clinical Instructor in Orthopedic Surgery and Adjunct Associate Professor of Mechanical Engineering
- SEYMOUR LEVINE: B.S., University of Chicago; M.S., Ph.D., University of Illinois; Associate Professor of Immunology and Microbiology
- NATHAN LEVITT: M.D., McGill University; Clinical Instructor in Internal Medicine
- GARY S. LEVITZ: B.A., M.A., State University of New York at Albany; Instructor in Community Medicine
- SHELDON G. LEVY: A.B., College of Wooster; M.A., Ph.D., University of Michigan; Professor of Psychology
- STANLEY H. LEVY: B.A., Princeton University; M.D., University of Pittsburgh; Clinical Associate Professor of Internal Medicine
- STEPHEN A. LEVY: M.D., Wayne State University; Clinical Assistant Professor of Internal Medicine
- BENJAMIN M. LEWIS: M.D., University of Pennsylvania; Professor of Internal Medicine
- CHARLES H. LEWIS: B.S., Langston University; M.A., Wayne State University; M.B.A., Michigan State University; Assistant Professor of Recreation and Park Services
- CLUNET LEWIS: J.D., Wayne State University; Adjunct Professor of Law
- HARVEY Y. LEWIS: B.S., M.D., University of Toronto; Clinical Associate Professor of Urology
- JOSEPH W. LEWIS: B.A., London University; M.A., Temple University; Instructor in English

RONALD F. LEWIS: B.A., Cornell University; M.A., Ph.D., Boston University; Adjunct Assistant Professor of Psychology

STEVEN A. LEWIS: B.S., Pennsylvania State University; Ph.D., State University of New York at Buffalo; Assistant Professor of Psychology

CHARLES W. LEWITT: B.S., Wayne State University; M.S., Ph.D., University of Illinois; Associate Professor of Civil Engineering

CARL K. LIAPCHEFF: A.B., M.A., M.D., Indiana University; Instructor (FTA) in Internal Medicine

JOHN H. LIBCKE: A.B., Albion College; B.S., M.D., Wayne State University; Clinical Instructor in Pathology

CARY M. LICHTMAN: A.B., Washington University; Ph.D., State University of New York at Buffalo; Associate Professor of Psychology

KIM K. LIE: M.D., University of Leiden; Clinical Instructor in Surgery

JAMES J. LIGHTBODY: B.A., M.S., Ph.D., Wayne State University; Associate Professor of Biochemistry

JAMES J. LIGHTBODY: A.B., Albion College; M.D., University of Michigan; Clinical Associate Professor of Internal Medicine

ALLAN J. LIGHTMAN: B.A.Sc., M.A., University of Toronto; Ph.D., Weizman Institute of Science, Israel; Assistant Professor of Electrical and Computer Engineering

JOSEPH A. LIQI: B.A., M.D., Wayne State University; Clinical Instructor in Ophthalmology

EDWARD C. LIM: B.S., St. Procopius College; M.S., Ph.D., Oklahoma State University; Professor of Chemistry

JESUS U. LIM: A.A., University of San Carlos; M.D., University of Santo Tomas; Clinical Instructor in Oncology

JAMES C. LIN: B.S.E.E., M.S.E.E., Ph.D., University of Washington; Associate Professor of Electrical and Computer Engineering

ORVILLE F. LINCK: B.A., Wayne State University; M.A., University of Wisconsin; Ph.D., Northwestern University; Professor Emeritus of English

MARIAN V. LINCOLN: M.A., Professor Emeritus of Music

KARL J. LINDBERG: B.A., Ph.D., University of California; Assistant Professor of Mathematics

MARGARET LINDBERG: B.A., Barnard College; M.Ed., Wayne State University; Instructor in Communications Skills

DAVID W. LINDNER: B.S., M.D., Wayne State University; Clinical Assistant Professor of Neurosurgery

HOMER LINDSEY: Adjunct Assistant Professor of Music

JWONG JWEI LING: B.S., M.D., Kaushitng Medical College; Clinical Assistant Professor of Radiology

LEONARD S. LINKNER: B.S., Wayne State University; M.S., M.D., University of Michigan; Clinical Instructor in Internal Medicine

HERMAN J. LINN: B.A., Simpson College; M.S., Northwestern University; M.D., University of Chicago; Clinical Associate Professor of Pathology

RICHARD L. LINTVEDT: B.A., Lawrence University; Ph.D., University of Nebraska; Professor of Chemistry

FLOYD H. LIPPA: B.A., M.D., University of Buffalo; Clinical Assistant Professor of Surgery

DAVID I. LIPSCHUTZ: B.A., Wayne State University; M.D., University of Michigan; Clinical Instructor in Gynecology and Obstetrics

CHANNING T. LIPSON: M.D., University of Michigan; Clinical Associate Professor of Psychiatry

ELLEN LISS: B.S., Graduate School of Economics; B.S., Wayne State University; M.A.T.M., University of Detroit; Instructor in Science and Technology

RICHARD A. LITT: D.D.S., University of Detroit; M.S., Northwestern University; Adjunct Associate Professor of Speech

EDWARD J. LITTLEJOHN: B.A., Wayne State University; J.D., Detroit College of Law; LL.M., Columbia University; Associate Dean and Professor of Law

JACK A. LITWIN: B.S., Wayne State University; M.D., University of Michigan; Clinical Instructor in Family Medicine

STELLA S. F. LIU-WELTY: B.A., Yen Ching University; M.A., George Peabody College; Ph.D., University of California; Associate Professor of Education

WALTER C. LIVINGSTON, JR.: B.S., University of Michigan; M.D., Wayne State University; Clinical Instructor in Internal Medicine

JAMES R. LLOYD: B.A., M.S., M.D., Ohio State University; Clinical Assistant Professor of Surgery

RICHARD L. LOEBL: B.A., Harvard University; Ph.D., University of California; Assistant Professor of Mathematics

IRENE E. LOEWENFELD: Ph.D., University of Bonn; Associate Professor of Ophthalmology

J. DANIEL LOGAN: B.A., Milliken University; A.M., Syracuse University; Ph.D., Wayne State University; Associate Professor of Speech

ARTHUR J. LOMBARD: B.S., Columbia University; J.D., Harvard University; Professor of Law

FREDERICA K. LOMBARD: B.A., Bryn Mawr College; J.D., University of Pennsylvania; LL.M., Yale University; Professor of Law

LAWRENCE B. LOMBARD: A.B., Cornell University; Ph.D., Stanford University; Assistant Professor of Philosophy

PAVEL L. LOMEN: M.D., P. J. Safarik University; Assistant Professor of Oncology

BERTON L. LONDON: B.S., M.D., University of Michigan; Clinical Assistant Professor of Internal Medicine

JUDITH Q. LONGYEAR: B.A., M.S., Ph.D., Pennsylvania State University; Associate Professor of Mathematics

GERALD LOOMUS: B.S., M.D., Wayne State University; Clinical Instructor in Internal Medicine

REUBEN LOPATIN: M.D., University of Western Ontario; Clinical Instructor in Internal Medicine

JAMES T. LOW: B.A., M.B.A., Ph.D., University of Michigan; Assistant Professor of Marketing

BETHANY LOWE: B.S., Roberts Wesleyan College; M.S.N., Wayne State University; Adjunct Instructor in Nursing

GEORGE P. LOWEKE: B.A., M.A., University of Michigan; Ph.D., University of Berlin; Associate Professor Emeritus of Engineering Mechanics

RICHARD B. LOWRY: B.A., Baldwin-Wallace College; M.E., Kent State University; Assistant Professor of Health and Physical Education

DONALD E. LUBBERS: B.S., Minot State College; M.A., Ph.D., Wayne State University; Adjunct Assistant Professor of Audiology

RICHARD LUBERA: M.D., State University of New York; Clinical Instructor in Internal Medicine

ANN LUBLIN: B.A., Smith College; M.D., New York University; Instructor in Pediatrics

ELLIOT D. LUBY: B.S., University of Missouri; M.D., Washington University; Clinical Professor of Psychiatry

RICHARD L. LUCAROTTI: B.S. (Pharmacy), University of Pittsburgh; Pharm.D., Philadelphia College of Pharmacy and Science; Assistant Professor of Clinical Pharmacy

CHARLES E. LUCAS: B.S., University of Detroit; M.D., Wayne State University; Professor of Surgery

CHARLES P. LUCAS: A.B., Harvard University; M.D., Boston University; Professor of Internal Medicine

JOHN LUCAS: B.S., Ph.D., Wayne State University; Assistant Professor of Pathology

LEON LUCAS: B.S., M.S.S.S., Boston University; Diploma in Social Work, Ph.D., Columbia University; Professor, School of Social Work

PATRICIA L. LUCAS: B.Ed., University of Toledo; M.S., Ph.D., Wayne State University; Instructor in Immunology and Microbiology

ROBERT J. LUCAS: M.D., Wayne State University; Clinical Assistant Professor of Surgery

LEO S. LUCKINBILL: B.S., St. Mary's College; M.S., San Diego State University; Ph.D., University of California; Assistant Professor of Biology

HERBERT G. LUDWIG: B.S.M.E., University of Michigan; M.S.I.E., Wayne State University; Associate Professor, Industrial Engineering and Operations Research

ROBERT J. LUEFT: B.S., Springfield College; M.E., Pennsylvania State University; P.E.D., Indiana University; Associate Professor of Health and Physical Education

RONALD H. LUKASIEWICZ: B.S. (Pharmacy), Detroit Institute of Technology; M.S., Wayne State University; Adjunct Assistant Professor of Hospital Pharmacy

AARON LUPOVITCH: B.S., M.S., M.D., Wayne State University; Clinical Assistant Professor of Pathology

- AUREL P. LUPULESCU: B.S., Lyceum C. Brediceanu, Romania; M.D., M.S., University of Bucharest; Ph.D., University of Windsor; Associate Professor of Dermatology and Syphilology
- JEANNE LUSHER: B.S., M.D., University of Cincinnati; Professor of Pediatrics
- LUELLA A. LUTZ: B.A., M.Ed., Wayne State University; Associate Professor of Family and Consumer Resources
- HELENE LYCAKI: B.A., University of Athens; M.A., Ph.D., Wayne State University; Adjunct Assistant Professor of Psychology
- SANDRA LYNESS: B.A., M.A., Ph.D., Wayne State University; Associate Professor of Education
- GEORGE E. LYNN: B.A., University of North Carolina; M.A., University of Maryland; Ph.D., Northwestern University; Professor of Audiology and Neurology
- HARVEY D. LYNN: B.A., M.D., University of Michigan; Clinical Assistant Professor of Gynecology and Obstetrics
- H. JAY LYONS: B.S., M.S., Brigham Young University; Ph.D., University of New Mexico; Assistant Professor of Physiology
- LUIS C. MAAS: B.S., Goethe College; M.D., National University of Asuncion; Clinical Instructor in Internal Medicine
- HAYWARD C. MABEN: B.S., Wayne State University; M.D., Meharry Medical College; Clinical Instructor in Surgery
- BARBARA J. MacDONALD: B.S., Wayne State University; Instructor in Education
- DONALD MacDONALD: B.A., M.A., Wayne State University; Ph.D., Northwestern University; Associate Professor of English
- RODERICK P. MacDONALD: B.S., Michigan State University; M.S., University of Detroit; Ph.D., Wayne State University; Assistant Professor of Pathology
- ROBERT E. MACK: M.D., St. Louis University; Professor of Internal Medicine
- JOHN W. MacKENZIE: B.A., University of Michigan; M.D., Wayne State University; Clinical Instructor in Family Medicine
- JOAN MacKNIESH: B.S., Wayne State University; Instructor in Occupational Therapy
- KATHERINE V. MACKS: B.A., Associate Professor Emerita of Education
- DONALD MacLACHLAN: Ph.D., Associate Professor Emeritus of Geology
- BOHDAN MacZULSKI: D.O., Kansas City College of Osteopathic Medicine; Clinical Instructor in Psychiatry
- IVAN J. MADER: M.S., M.D., Wayne State University; Clinical Assistant Professor of Internal Medicine
- GEORGE MAGER: B.A., University of Michigan; J.D., Wayne State University; Adjunct Professor of Law
- MELVIN A. MAGIDSON: M.D., University of Illinois; Clinical Instructor in Radiology
- HARRY J. MAGOULIAS: B.A., M.A., Wayne State University; Ph.D., Harvard University; Professor of History
- MARYANN MAHAFFEY: B.A., Cornell College of Iowa; M.S.W., University of Southern California; Professor, School of Social Work
- SUDESH K. MAHAJAN: M.D., Delhi University; Instructor (FTA) in Internal Medicine
- MURRAY S. MAHLIN: M.D., Wayne State University; Clinical Instructor in Urology
- M. ZAFAR MAHMUD: M.B.B.S., Nishtar Medical College; Assistant Professor of Neurology
- CLIFFORD MAIER: B.S., M.S., Ph.D., University of Wisconsin; Professor of Science and Technology
- LAURIER DIBB MAILLOUX: B.A., M.A., Ph.D., Wayne State University; Assistant Professor of Social Science
- ROSSER L. MAINWARING: B.S., M.D., Wayne State University; Clinical Professor of Pathology
- HARRY MAISEL: M.Sc., McGill University; M.B., Ch.B., University of Cape Town; Chairman and Professor of Anatomy
- PENELOPE MAJESKE: B.A., M.A., Wayne State University; Instructor in Communications Skills
- GAIL E. MAKINEN: B.S., Central Michigan University; M.A., Ph.D., Wayne State University; Associate Professor of Economics
- DAVID H. MAKINSON: B.S., Kent State University; M.A., Ph.D., University of Iowa; Associate Professor of Education
- JOSEPH H. MAKURATH: B.A., M.A., Temple University; Ph.D., Johns Hopkins University; Assistant Professor of Geology
- GHOLAMALI MALEKHEDAYAT: M.D., Pahlavi University; Clinical Instructor in Internal Medicine
- CARLTON MALEY: B.A., Pomona College; M.S., Ph.D., Harvard University; Associate Professor of Advanced Studies
- A. WASEEM MALICK: B.S. (Pharmacy), M.S., Punjab University; M.S., Columbia University; Ph.D., University of Michigan; Assistant Professor of Pharmaceutics
- LEONARD I. MALKIN: A.B., New York University; Ph.D., University of California; Associate Professor of Biochemistry
- JOSE MALLARE: B.M., M.M., University of Michigan; Adjunct Assistant Professor of Music
- ROBERT E. MALONE: B.A., M.D., Ohio State University; Clinical Assistant Professor of Internal Medicine
- HERBERT B. MALOS: B.A., Lafayette College; Ph.D., University of Minnesota; Adjunct Assistant Professor of Psychology
- STEPHEN W. MAMCHUR: Certificate in Education, University of Saskatchewan; M.A., McGill University; Ph.D., Yale University; Assistant Professor of Sociology
- EBERHARD F. MAMMEN: M.D., University of Giessen; Dean of the College of Pharmacy and Allied Health Professions and Professor of Pathology
- PANG L. MAN: M.B.B.S., Sun Yat-Sen University; Clinical Assistant Professor of Psychiatry
- ALBERTO T. MANAHAN: B.S., M.D., University of the Philippines; Instructor in Otolaryngology
- LESLIE MANDEL: M.B., Ch.B., University of Liverpool; Clinical Instructor in Internal Medicine
- BERNARD MANDELBAUM: B.S., Havana Institute; M.D., Havana Medical University; Associate Professor of Gynecology and Obstetrics
- HUGO MANDELBAUM: Dr. Rer. Nat.; Professor Emeritus of Geology
- GERALD H. MANDELL: B.S., M.D., Wayne State University; Clinical Associate Professor of Pathology
- JOSEPH MANTEL: B.S., University of Babes-Bolyai; M.S., Ph.D., Wayne State University; Assistant Professor of Radiology
- BEATRIZ M. MANZ: B.A., State University College, New York; M.A., State University of New York; Instructor in Social Science
- SAJID MAQBOOL: B.Sc., M.B.B.S., University of Punjab; Clinical Instructor in Pediatrics
- MANABHARANA L. MARASINGHE: LL.B., LL.M., London University; Professor (Visiting) of Law
- DONALD R. MARCOTTE: B.Ed., Rhode Island College; M.A., Ph.D., University of Connecticut; Associate Professor of Education
- RAYMOND R. MARGHERIO: B.S., University of Michigan; M.D., Wayne State University; Clinical Instructor in Ophthalmology
- FREDERICK J. MARGOLIS: B.S., University of Pittsburgh; M.S., Wayne State University; Clinical Assistant Professor of Pediatrics
- MARVIN O. MARGOLIS: B.A., Roosevelt University; M.A., M.D., Wayne State University; Ph.D., Michigan State University; Assistant Professor of Psychiatry
- R. RALPH MARGULIS: M.D., Harvard Medical School; Associate Professor of Gynecology and Obstetrics
- FEDERICO G. MARIONA: B.A., Carmen Arriola De Marin College; M.D., University of Buenos Aires; Associate Professor of Gynecology and Obstetrics
- MAX MARK: Jud., University of Vienna; Professor of Political Science
- FRANK R. MARKEY: A.B., M.D., Wayne State University; Clinical Instructor in Ophthalmology
- THADDEUS MARKIEWICZ: Adjunct Assistant Professor of Music
- BARRY S. MARKMAN: B.S., University of Maryland; M.A., Hollins College; Ph.D., Emory University; Associate Professor of Education
- BEN MARKS: A.B., B.M., Wayne State University; Clinical Assistant Professor of Psychiatry
- BERNARD H. MARKS: B.A., M.S., M.D., Ohio State University; Chairman and Professor of Pharmacology
- LAWRENCE J. MARNETT: B.S., Rockhurst College; Ph.D., Duke University; Assistant Professor of Chemistry
- ARTHUR F. MAROTTI: A.B., Fordham College; Ph.D., Johns Hopkins University; Associate Professor of English

MARY ANN MARRAZZI: B.A., University of Minnesota; Ph.D., Washington University; Assistant Professor of Pharmacology

RICHARD MARRIOTT: B.S., Ph.D., University College, London; Professor of Chemical and Metallurgical Engineering and Member of Research Institute for Engineering Sciences

JAMES R. MARSHALL: M.D., University of Michigan; Clinical Instructor in Ophthalmology

JAMES E. MARTIN: B.A., Antioch College; M.B.A., Ph.D., Washington University; Assistant Professor of Management and Industrial Relations

JOHN M. MARTIN: B.A., Hamilton College; M.A., Columbia University; Ph.D., City University of New York; Assistant Professor of Psychology

MARCEE MARTIN: B.A., Michigan State University; M.Ed., Wayne State University; Instructor in Education

PETER A. MARTIN: B.A., B.M., M.D., Wayne State University; Clinical Professor of Psychiatry

WALTER MARTIN: B.S., City College of New York; M.D., Howard University; Clinical Assistant Professor of Internal Medicine

MILA MARTINEZ-MOJARES: M.D., University of Santo Tomas; Assistant Professor of Internal Medicine

SUSAN R. MARTYN: B.A., St. Olaf College; J.D., Marquette University; Instructor in Law

JOEL G. MASON: B.S., Western Michigan University; M.S., Wayne State University; Professor of Physical Education

JOHN MASON: B.A., Washington and Jefferson College; M.A., Ph.D., Ohio State University; Assistant Professor of Speech

MATTHEW W. MASON: B.F.A., M.A., M.F.A., Wayne State University; Instructor in Neurosurgery

PHILIP P. MASON: B.A., Boston University; M.A., Ph.D., University of Michigan; Professor of History

DONALD D. MASSE: B.S., Purdue University; M.D., Marquette University; Clinical Instructor in Gynecology and Obstetrics

ALEX MATAVERDE: M.D., University of Santo Tomas; Assistant Professor of Internal Medicine

NEIL MATHER: B.A., University of Western Ontario; M.A., Ph.D., University of Wisconsin; Assistant Professor of Economics

JACKSON MATHEWS: B.A., M.A., University of Georgia; Ph.D., Columbia University; Professor Emeritus of French

WILLIS W. MATHEWS: B.A., Oregon State University; Ph.M., Ph.D., University of Wisconsin; Associate Professor of Biology

FRANCIS P. MATHUR: B.E.E., National University of Ireland; M.S., Ph.D., University of California at Los Angeles; Professor of Mathematics

JOHN M. MATTILA: B.B.A., University of Minnesota; M.B.A., Ph.D., University of Wisconsin; Professor of Economics

LIDA H. MATTMAN: A.B., M.A., University of Kansas; Ph.D., Yale University; Professor of Biology

PAUL E. MATTMAN: A.B., Columbia University; M.D., Johns Hopkins University; Clinical Associate Professor of Internal Medicine

JOHN G. MAURER: B.S., University of Detroit; M.B.A., Ph.D., Michigan State University; Associate Professor of Management; Assistant Dean of the School of Business Administration

BETTY L. MAURSTAD: B.A., M.A., A.M.L.S., University of Minnesota; Ph.D., Case Western Reserve University; Assistant Professor of Education

FERDINAND F. MAUSER: A.B., Heidelberg College; M.S., New York University; Doctorate in Public Economics, University of Munich; Professor Emeritus of Marketing

BORIS MAXIMOVICH: Diploma, Kiev Conservatory of Music; Adjunct Professor of Music

KAZUTOSHI MAYEDA: B.S., M.S., Ph.D., University of Utah; Professor of Biology

T. F. MAYER-OAKES: Ph.B., Ph.D., University of Chicago; Professor of History

NANCY JUNE McADOO: B.A., College of William and Mary; M.F.A., University of Denver; Instructor in Speech

LEONOR E. McALPINE: B.A., M.A., Wayne State University; Assistant Professor of Spanish

BARBARA McARTHUR: B.S., M.S., Depaul University; M.S., Ph.D., University of Washington; Associate Professor of Nursing

FRANK A. McBRIDE: B.S., South Dakota State College; M.S., University of Michigan; Ph.D., Michigan State University; Associate Professor of Health and Physical Education

THOMAS J. McBRYAN: M.D., University of Pennsylvania; Clinical Assistant Professor of Internal Medicine

PETER W. McCABE: A.B., Harvard University; M.D., Cornell University; Clinical Assistant Professor of Surgery

MARION G. McCALL: B.A., Fisk University; M.S., M.D., University of Michigan; Clinical Instructor in Ophthalmology

RICHARD S. McCAUGHEY: M.D., Georgetown University; Clinical Associate Professor of Internal Medicine

ROY B. McCAULEY: B.S., Ph.D., Ohio State University; Associate Professor of Pharmacology

PERCY R. McCLAIN: B.S. (Pharmacy), University of Michigan; M.S., Wayne State University; Adjunct Assistant Professor of Hospital Pharmacy

W. MARTIN McCLAIN: B.A., Rice University; Ph.D., Cornell University; Associate Professor of Chemistry

JOHN A. McCLUNG: B.G.Ed., University of Omaha; M.S., Ph.D., University of Pittsburgh; Assistant Professor of Speech

JOHN McCOLLOUGH: B.A., Michigan State University; M.D., University of Michigan; Clinical Instructor in Orthopedic Surgery

CHESTER A. McCORMICK: B.S., Westchester State Teachers College; M.S., University of Pennsylvania; Ed.D., Columbia University; Professor of Education

JAY McCORMICK: B.A., University of Michigan; Associate Professor of English

LOWELL E. McCOY: B.A., M.A., Miami University; Ph.D., Wayne State University; Associate Professor of Physiology

SANDRA U. McCOY: B.A., University of Minnesota; M.A., Indiana University; Ph.D., Wayne State University; Professor of Humanities

MARGARET McCracken: B.S., M.P.H., University of Michigan; Instructor in Nursing

LESTER E. McCULLOUGH: A.B., M.D., Wayne State University; Clinical Assistant Professor of Ophthalmology

AUBREY V. McCUTCHEON, JR.: B.B.A., Detroit Institute of Technology; J.D., Detroit College of Law; Associate Professor of Education

FRANKLIN McDONALD: B.S., St. Joseph College; M.D., Temple University; Professor of Internal Medicine

ROBERT J. McDONALD: A.B., Albion College; M.D., University of Michigan; Clinical Assistant Professor of Ophthalmology

WILLIAM G. McDONALD: B.A., M.D., Indiana University; Assistant Professor of Internal Medicine

WILLIAM G. McEVITT: A.B., M.A., M.D., Georgetown University; Clinical Assistant Professor of Surgery and Adjunct Professor of Speech

CHARLES McEWEN, JR.: A.B., M.D., Harvard University; Associate Professor (FTA) of Internal Medicine

T. MANFORD McGEE: B.A., Hope College; M.D., Johns Hopkins School of Medicine; Clinical Associate Professor of Otolaryngology

ROBERT E. McGILL: Ph.D., University of Detroit; M.A., Northwestern University; Ph.D., University of Michigan; Associate Professor of Speech

KENNETH D. McGINNIS: B.S., University of Kentucky; M.D., Northwestern University; Clinical Associate Professor of Radiology

MARY C. McGRATH: B.S., Mercy College; M.S., Wayne State University; Adjunct Instructor in Medical Technology

JAMES R. McGUIGAN: B.S., Carnegie-Mellon University; M.B.A., University of Chicago; Ph.D., University of Pittsburgh; Associate Professor of Finance and Business Economics

JOHN F. McGUIRE: B.S., Brown University; M.D., Georgetown University; Clinical Assistant Professor of Neurosurgery

JOHN T. McHENRY: B.S., Santa Clara University; M.S., University of Hawaii; M.D., Cornell University; Associate Professor of Neurology

NORMA McHUGH: B.S., University of Kansas; M.S., Boston University; Assistant Professor of Nursing

WILLIAM B. McINTYRE: B.A., University of Detroit; M.D., Wayne State University; Clinical Assistant Professor of Internal Medicine

GEORGE E. McKEEVER: B.A., M.D., University of Michigan; Clinical Assistant Professor of Internal Medicine

- JAMES McKENNA: B.A., Seton Hall University; M.D., National University, Dublin; Clinical Assistant Professor of Otolaryngology
- THOMAS McKENZIE: B.A., M.D., University of Western Ontario; Clinical Assistant Professor of Ophthalmology
- PATRICK L. McKERCHER: B.S. (Pharmacy), Ferris State College; M.S., Wayne State University; Ph.D., Ohio State University; Associate Professor of Pharmaceutical Administration
- T. MICHAEL McKINSEY: B.A., Southern Methodist University; M.A., Kansas State University; Ph.D., Indiana University; Assistant Professor of Philosophy
- JASPER E. McLAURIN: M.D., Maharry Medical College; Assistant Professor of Neurology
- DON W. McLEAN: M.D., Wayne State University; Clinical Assistant Professor of Surgery
- JAMES H. McMICKING: B.S., M.S., Wayne State University; Ph.D., Ohio State University; Associate Chairman and Associate Professor of Chemical Engineering and Metallurgical Engineering
- MARIAN McMILLAN: B.S., M.Ed., Wayne State University; Ed.D., Pennsylvania State University; Professor of Education
- JAMES McMONAGLE: A.B., Western Michigan University; A.M., University of Michigan; Associate Professor Emeritus of Speech
- KATHRYN McMORROW: M.D., University of Buffalo; Instructor in Neurology
- KATHLEEN McNAMEE: A.B., Manhattanville College; Instructor in Greek and Latin
- AL McNEIL: B.S., Ohio State University; Instructor in English
- ROGER F. McNEILL: B.A., Yale University; M.D., University of Nebraska; Clinical Instructor in Surgery
- LAWRENCE J. McNICHOL: M.D., Loyola University; Clinical Instructor in Internal Medicine
- THOMAS M. McNULTY: B.Th., University of Windsor; M.A., Ph.D., Indiana University; Assistant Professor of Speech
- SHIRLEY J. McRAE: B.S., Wayne State University; Instructor in Education
- WILSON McTEER: B.A., Maryville College; Ph.D., University of Chicago; Professor Emeritus of Psychology
- JAMES S. MEASELL: B.S., Muskingum College; M.A., Ph.D., University of Illinois; Associate Professor of Speech
- JOSEPH R. MEERSCHAEFT: B.A., M.D., Wayne State University; Clinical Instructor in Physical Medicine and Rehabilitation
- DANIEL D. MEGLER: M.D., University of Belgrade; Clinical Instructor in Otolaryngology
- JOHN N. MEHELAS: B.S., United States Naval Academy; M.D., University of Salonic; Assistant Professor of Surgery
- AMIR H. MEHREGAN: M.D., University of Teheran School of Medicine; Clinical Professor of Dermatology and Syphilology
- DONALD A. MEIER: B.S., M.D., University of Michigan; Clinical Assistant Professor of Internal Medicine
- LORRAINE R. MEIER: B.A., Central Michigan University; M.A., Ph.D., Wayne State University; Instructor in Urban Humanities
- JEROME MEISEL: B.S.E.E., Case Institute of Technology; M.S.E.E., Massachusetts Institute of Technology; Ph.D., Case Institute of Technology; Professor of Electrical and Computer Engineering
- HARRY E. MEISNER: B.S., M.D., Wayne State University; Clinical Assistant Professor of Internal Medicine
- LEONARD MELANDER: B.S., M.D., University of Minnesota; Clinical Assistant Professor of Internal Medicine
- THOMAS P. MELICAN: B.A., St. Joseph's College; M.S.S.S., Fordham University; D.S.W., Washington University; Associate Professor, School of Social Work
- HYMAN MELLEN: B.A., M.D., Wayne State University; Clinical Professor of Internal Medicine
- J. WILMER MENGE: Ph.D., Professor Emeritus of Education
- MICHAEL J. MENGE: A.B., Princeton University; M.D., Wayne State University; Clinical Instructor in Otolaryngology
- RAYMOND MERCIER: A.B., University of Michigan; M.D., Wayne State University; Assistant Professor of Psychiatry
- NORMA MERRY: B.A., M.A., Wayne State University; Instructor in English
- EDWARD MESSINGER: B.A., Queens College; M.A., Brown University; Instructor in French
- JOHN J. METZNER: B.E.E., M.E.E., Eng.Sc.D., New York University; Associate Professor of Electrical and Computer Engineering
- DAVID B. MEYER: B.A., Ph.D., Wayne State University; M.S., University of Michigan; Professor of Anatomy
- KENNETH R. MEYER: A.B., Princeton University; M.D., University of Pennsylvania; Clinical Associate Professor of Pathology
- RUBEN MEYER: B.A., M.B., M.D., Wayne State University; M.P.H., University of Michigan School of Public Health; Professor of Community Medicine
- CATHERINE MIANECKI: B.S.N., Mercy College; M.S.N., Wayne State University; Instructor in Nursing
- JOSEPH N. MICELI: B.S., Pace College; M.S., Ph.D., University of Detroit; Assistant Professor of Pharmacology and Pediatrics
- ALVIN B. MICHAELS: B.S., M.D., University of Michigan; Clinical Assistant Professor of Psychiatry
- JAMES MICHELS: Assoc. Arts, Mott Community Junior College; B.A., University of Michigan; M.A., Wayne State University; Instructor in Communications Skills
- KIM E. MICHENER: B.S., M.S., Ohio State University; Ph.D., Purdue University; Assistant Professor of Mathematics
- RICHARD W. MICKELSON: B.S., M.S., Ph.D., Wayne State University; Associate Professor of Chemical and Metallurgical Engineering
- STEPHEN MIGDAL: B.S., M.D., Wayne State University; Assistant Professor of Internal Medicine
- VJEKOSLAV MIKELIC: M.D., University of Zagreb; Clinical Instructor in Radiology
- SYLVAN L. MIKELSON: B.A., Luther College; M.A., Ed.D., Columbia University; Professor of Education
- RICHARD D. MILES: M.A., Ph.D., University of Michigan; Director of American Studies and Professor of History
- ANTONINA MILLER: M.D., Ludwig Maximilian University, Munich; Clinical Instructor in Dermatology and Syphilology
- DOUGLAS A. MILLER: B.S. (Pharmacy), Ohio State University; Pharm.D., Philadelphia College of Pharmacy and Science; Assistant Professor of Clinical Pharmacy
- EDNA P. MILLER: B.A., Diploma in Social Work, University of Leeds; M.S.W., Wayne State University; Associate Professor, School of Social Work
- ELMER B. MILLER: A.B., M.D., Washington University, St. Louis; Clinical Assistant Professor of Surgery
- GEORGE L. MILLER: Ed.D., Professor Emeritus of Education
- IRVING M. MILLER: B.S., M.D., Wayne State University; Clinical Instructor in Pediatrics
- KARL L. MILLER: B.A., M.D., Wayne State University; Clinical Instructor in Gynecology and Obstetrics
- MAXWELL H. MILLER: B.S. (Pharmacy), M.S., Wayne State University; Adjunct Instructor in Hospital Pharmacy
- RAYMOND C. MILLER: A.B., College of Emporia; A.M., Ph.D., University of Chicago; Professor Emeritus of History
- ROBERT V. MILLER: B.A., M.A., M.Ed., Ph.D., University of Illinois; Assistant Professor of Education
- ROBERT W. MILLER: B.M., M.M., Ph.D., University of Michigan; Associate Professor of Political Science
- ROBERT L. MILLETTE: B.S., Oregon State College; Ph.D., California Institute of Technology; Associate Professor of Immunology and Microbiology
- JOHN C. MILLS: B.F.A., M.A., Wayne State University; Assistant Professor of Art
- FREDA A. MILSTEIN: B.A., M.A., Wayne State University; M.A., Ph.D., University of Michigan; Adjunct Assistant Professor of Psychology
- JAMES T. MIMURA: B.S., University of Hawaii; M.D., University of Chicago; Clinical Assistant Professor of Otolaryngology
- RICHARD W. MINADEO: A.B., Syracuse University; M.S., Ph.D., University of Wisconsin; Professor of Greek and Latin
- ALAN M. MINDLIN: B.S., Wayne State University; M.D., University of Michigan; Clinical Instructor in Ophthalmology
- DANIEL W. MINOCK: A.B., M.A., University of Detroit; Ph.D., Ohio State University; Assistant Professor of English
- MORRIS J. MINTZ: A.B., M.D., University of Michigan; Clinical Instructor in Ophthalmology
- MORTEZA MINUI: B.Sc., M.D., Teheran University; Clinical Assistant Professor of Psychiatry

JEFFREY H. MIRO: B.A., Cornell University; J.D., University of Michigan; LL.M., Harvard University; Adjunct Professor of Law

DIANE C. MIRVIS: A.B., University of Michigan; M.S.I.S., Wayne State University; Assistant Professor of Education

ABDUL M. MIRZA: B.Sc., M.B.B.S., University of Punjab; Clinical Instructor in Pediatrics

MISCHA MISCHAKOFF: Diploma, St. Petersburg Imperial Conservatory of Music; Adjunct Professor of Music

EDWARD MISSAVAGE, JR.: B.S., M.D., University of Illinois; Clinical Instructor in Psychiatry

DAVID A. MITCHELL: B.F.A., M.A., State University of Iowa; M.F.A., Cranbrook Academy of Art; Professor of Art

J. ANDREW MITCHELL: B.S., Southern Methodist University; Ph.D., University of Kansas; Assistant Professor of Anatomy

JOHN F. MITCHELL: B.S. (Pharmacy), Albany College of Pharmacy; Pharm.D., University of Michigan; Adjunct Instructor in Clinical Pharmacy

ROBERT A. MITCHELL: B.S., Ph.D., Queen's University, Ireland; Associate Professor of Biochemistry

MOUFID MITRI: B.S., Ph.D., Brothers College; M.D., St. Joseph University; Clinical Assistant Professor of Surgery

NICHOLAS J. MIZERES: B.S., Kent State University; M.S., Michigan State University; Ph.D., University of Michigan; Professor of Anatomy

HIROSHI MIZUKAMI: B.A., International Christian University of Tokyo; Ph.D., University of Illinois; Professor of Biology

BERT A. MOBLEY: B.S., Eastern Nazarene College; M.S., Ph.D., University of Chicago; Assistant Professor of Physiology

WILLIAM MOCKLER: B.A., M.A., West Virginia University; Ph.D., Ohio State University; Associate Professor of English

KAMRAN S. MOGHISSI: M.B., Ch.B., M.D., University of Geneva; Professor of Gynecology and Obstetrics

GEORGE MOGILL: B.A., M.D., Wayne State University; Clinical Assistant Professor of Family Medicine

JOHN E. MOGK: B.B.A., J.D., University of Michigan; Diploma of Comparative Law, University of Stockholm; Professor of Law

RAMESH K. MOHINDRA: M.D., Delhi University; Clinical Assistant Professor of Oncology

RUTH MOLINE: B.S., Kansas State College; M.Ed., University of Illinois; Ph.D., Ohio State University; Assistant Professor of Education

MARTIN MOLSON: B.A., State University of New York at Albany; Instructor in Speech

FRANK MONACO: B.S., D.D.S., University of Detroit; Clinical Assistant Professor of Surgery

KATHLENE MONAHAN: B.S., Mt. St. Joseph College; M.S.N., Wayne State University; Associate Professor of Nursing

JOSEPH R. MONFORTE: B.A., Rutgers University; Ph.D., University of Maryland; Adjunct Assistant Professor of Pharmacology

BRUCE F. MONROE: B.S., M.D., University of Chicago; Assistant Professor of Surgery

ERVIN MONROE: B.M., Oberlin University; M.M., Manhattan School of Music; Adjunct Assistant Professor of Music

ROBERT E. MONROE: B.S., Wayne State University; Adjunct Assistant Professor of Mathematics

WILLIAM C. MONTGOMERY: A.B., M.D., Johns Hopkins University; Clinical Assistant Professor of Pediatrics

GUERIN MONTILUS: B.A., University of Ottawa; M.A., University of Haiti; M.A., University of Paris; Lic., Sorbonne; Ph.D., University of Zurich; Assistant Professor of Urban Humanities

DARLENE MOOD: B.M.Ed., Roosevelt University; M.A., Ph.D., Wayne State University; Assistant Professor of Nursing

DORIS MOORE: B.S., M.A., Wayne State University; Instructor in Family and Consumer Resources

ELEANORA HAEGLE MOORE: Ed.D., Professor Emeritus of Education

GERALD A. MOORE: A.B., University of Michigan; M.D., Wayne State University; Assistant Professor of Neurosurgery

WILLIAM S. MOORE: B.S., Michigan State University; Ph.D., University of Connecticut; Associate Professor of Biology

WILLIS E. MOORE: B.S. (Pharmacy), Ph.D., Ohio State University; Director of Continuing Education Programs and Professor of Pharmaceuticals

EDWARD L. MOOREHEAD: B.S., Regis College; M.D., Stritch School of Medicine; Clinical Assistant Professor of Oncology

SEID A. MOOSSAVI: M.D., Tabriz University; Clinical Instructor in Surgery

COLEMAN MOPPER: B.S., University of Georgia; M.D., Georgia Medical College; M.S., Wayne State University; Clinical Professor of Dermatology and Syphilology

FRANK J. MORAN: A.B., M.D., Wayne State University; Clinical Instructor in Ophthalmology

JOHN S. MORAN: M.D., Wayne State University; Clinical Assistant Professor of Psychiatry

LAWRENCE G. MORAWA: M.D., University of Michigan; Clinical Instructor in Orthopedic Surgery

HAROLD V. MORLEY: B.S., College of Wooster; M.D., Western Reserve University; Clinical Assistant Professor of Urology

LEON H. MORRIS: A.B., Temple University; D.O., College of Osteopathic Medicine and Surgery; Clinical Instructor in Internal Medicine

SYDELLE MORRISON: B.S., M.S., Wayne State University; Instructor in Occupational Therapy

D. CLARENCE MORROW: B.A., University of Manitoba; M.A., University of Toronto; Ph.D., University of Chicago; Professor Emeritus of Mathematics

JONATHAN MORSE: B.S., M.S., Pennsylvania State University; Ph.D., Indiana University; Assistant Professor of English

PHILIP D. MORSE: B.A., Ph.D., University of California; Assistant Professor of Biology

WILLIAM H. MORSE: B.A., M.D., University of Illinois; Clinical Assistant Professor of Internal Medicine

BERNICE MORTON: B.S.N., M.S.N., Wayne State University; Associate Professor of Nursing

JACQUELINE MORTON: B.A., Hunter College; M.A., Ph.D., Columbia University; Assistant Professor of French

DEWEY F. MOSBY: B.A., Lamar University; M.A., University of California; Ph.D., Harvard University; Adjunct Professor of Art History

JOHN W. MOSES: B.S., Colby College; M.D., Boston University; Clinical Instructor in Internal Medicine

ROBERT E. MOSHER: B.S., M.S., Ph.D., Wayne State University; Adjunct Associate Professor of Geology

MITCHELL S. MOSKOWITZ: B.A., Brooklyn College; M.S., Ph.D., Rutgers University; Adjunct Assistant Professor of Electrical and Computer Engineering

LEONARD W. MOSS: B.S., M.A., Wayne State University; Ph.D., Michigan State University; Professor of Anthropology

RONALD R. MOURANT: B.A., M.A., University of Florida; Ph.D., Ohio State University; Associate Professor of Industrial Engineering and Operations Research

EFFAT MOUSSA-HAMOUDA: B.S., Cairo University; M.S., University of Chicago; Ph.D., University of Iowa; Assistant Professor of Industrial Engineering and Operations Research

JOHN W. MOYNIHAN: M.D., Georgetown University; Clinical Assistant Professor of Internal Medicine

ANDREW J. MOZOLA: B.A., Wayne State University; M.S., Ph.D., Syracuse University; Professor of Geology

JAMES T. MUCKERMAN: B.A., Carlton College; Ph.D., University of Wisconsin; Adjunct Associate Professor, Research Institute for Engineering Sciences

ROLF K. MUELLER: M.S., Institute of Technology, Munich; Ph.D., University of Jena; Dr. Habil., Institute of Technology, Munich; Adjunct Professor of Engineering Sciences

HECTOR L. MULERO: B.S., M.D., University of Puerto Rico; Clinical Instructor in Internal Medicine

FREDERICK A. MULHAUSER: B.S., M.E., Wayne State University; Ph.D., University of Michigan; Associate Professor of Health and Physical Education

BERNHARD F. MULLER: B.S., M.D., University of Michigan; Assistant Professor (FTA) of Internal Medicine

RICHARD K. MULVEY: B.S. (Pharmacy), M.S., Ph.D., Purdue University; Associate Professor of Pharmacology

CARROLL L. MUNSHAW: B.A., Calvin College; M.A., University of Michigan; Ed.D., Wayne State University; Head of the Division of Educational Leadership and Professor of Education

PAUL J. MUNZENBERGER: B.S. (Pharmacy), M.S., Pharm. D., Wayne State University; Associate Professor of Clinical Pharmacy

- GENESIO MURANO: B.A., University of Massachusetts; M.S., Ph.D., Wayne State University; Associate Professor of Physiology
- FRANK MURCH: A.T.C.M., Toronto Conservatory of Music; M.M., University of Michigan; Assistant Professor of Music
- RAYMOND J. MURPHY: B.S., J.D., S.J.D., St. Johns University; M.A., Columbia University; Ed.M., Harvard University; M.B.A., University of Michigan; Professor of Business Law
- CHARLES A. MURRAY: B.S., Southwest Texas University; M.S., University of Minnesota; M.D., University of Texas Medical Center at Galveston; Clinical Assistant Professor of Surgery
- IAN MURRAY: M.D., University of Edinburgh; Clinical Instructor in Internal Medicine
- JOHN J. MUSIAL: B.A., Michigan State University; M.A., University of Michigan; Adjunct Faculty in Urban Planning
- JAROSLAW MUZ: M.D., Medical Academy of Szczecin; Clinical Instructor in Radiology
- DAN W. MYERS: A.B., M.D., University of Michigan; Clinical Professor of Internal Medicine
- KEITH E. MYERS: B.S., Indiana University; M.S., Northern Illinois University; Instructor in Education
- DELBERT P. NACHAZEL: M.D., Marquette University; Clinical Assistant Professor of Ophthalmology
- CHARLES A. NAGLER: B.S.E., M.S.E., University of Michigan; Ph.D., University of Minnesota; Associate Professor of Metallurgical Engineering
- PETER NAGOURNEY: B.A., City College of New York; M.A., Ph.D., University of Chicago; Assistant Professor of English
- JANARDAN B. NAGWEKAR: B.S., Baroda University; B.S. (Pharmaceutical Technology), Bombay University; M.S., Philadelphia College of Pharmacy and Science; Ph.D., Temple University; Professor of Pharmaceutics
- K. C. NAIR: M.B.B.S., University of Kerala; M.S., University of Michigan; Clinical Assistant Professor of Psychiatry
- ROBERT M. NALBANDIAN: B.A., M.D., Wayne State University; Adjunct Professor of Physiology
- SONG HAI NAM: M.D., Yonsei University; Assistant Professor of Pathology
- VELLORE G. NANDAKUMAR: M.B.B.S., Mysore Medical College; Instructor in Psychiatry
- MUBARIZ NAQVI: B.S., Gordon College, Pakistan; M.D., Dow Medical School, Pakistan; Instructor in Pediatrics
- RALPH L. NASH: A.B., M.A., Duke University; Ph.D., Harvard University; Professor of English
- LAWRENCE E. NATHAN, JR.: B.S., M.S., Wayne State University; D.O., College of Osteopathic Medicine and Surgery; Clinical Assistant Professor of Pathology
- JAMES E. NAWARA: B.F.A., Art Institute of Chicago; M.F.A., University of Illinois; Assistant Professor of Art
- NANCY C. NEAHER: A.B., Smith College; M.A.T., M.A., Harvard University; Ph.D., Stanford University; Assistant Professor of Art History
- MARY LOUISE NEBEL: B.S., Marygrove College; M.S., Vassar College; Ph.D., Wayne State University; Professor of Chemistry, Mortuary Science
- EDWARD NEDWICKI: B.S., University of Detroit; M.D., University of Michigan; Associate Professor of Internal Medicine
- ARTHUR NEFF: B.A., J.D., University of Michigan; Dean Emeritus of the Law School
- FREDERICK C. NEFF: B.S., M.A., Ohio State University; Ed.D., University of California at Los Angeles; Professor of Education
- JOHN D. NEFF: A.B., Wesleyan College; M.A., Ph.D., Harvard University; Adjunct Professor of Art History
- DONALD NEILSEN: B.A., University of Cincinnati; M.A., Colorado State University; Ph.D., Wayne State University; Adjunct Assistant Professor of Audiology
- ROBERT J. NELSON: B.A., M.A., Ohio State University; Ph.D., Johns Hopkins University; Assistant Professor of Art
- CYNTHIA NEPJUK: B.S., University of Detroit; M.D., Wayne State University; Clinical Instructor in Radiology
- WARREN NESBIT: B.S., University of Detroit; M.D., Wayne State University; Clinical Instructor in Internal Medicine
- ROBERT J. NETZEL: B.S., M.D., University of Michigan; Clinical Instructor in Ophthalmology
- ELIZABETH NEUMANN: B.S.N., University of Michigan; M.S., University of Maryland; Assistant Professor of Nursing
- ROBERT G. NEWBY: B.M.E., Wichita University; M.A., Ph.D., Stanford University; Assistant Professor of Sociology
- EMILIE A. NEWCOMB: B.A., Wells College; M.A., Columbia University; Ph.D., University of Wisconsin; Professor of English
- FREDERICK J. NEWMAYER: B.A., University of Rochester; M.A., University of California at Los Angeles; Ph.D., University of Illinois; Associate Professor of English
- KENNETH K. NEWTON: B.A., University of Buffalo; M.D., Western Reserve University; Clinical Assistant Professor of Internal Medicine
- NATIVIDAD NGO: B.S.N., University of the Philippines; M.P.H., Yale University; Ph.D., University of Michigan; Assistant Professor of Nursing
- ROBERT NICCOLINI: B.A., M.D., Wayne State University; Assistant Professor of Psychiatry
- SAMUEL NICHAMIN: B.A., University of Michigan; M.D., University of Chicago; Clinical Assistant Professor of Pediatrics
- LYNN N. NICHOLAS: Ph.D., Professor Emeritus of Education
- PATRICIA A. NICHOLS: B.S.N., M.S., Syracuse University; Assistant Professor of Health Education
- WALLACE NICHOLS, JR.: B.S., M.D., Western Reserve University; Clinical Instructor in Pediatrics
- WARREN O. NICKEL: B.A., M.D., Wayne State University; Professor of Surgery
- AAGE E. NIELSEN: Ph.B., University of Copenhagen; M.D., Harvard University; Clinical Professor of Neurosurgery
- MICHAEL NIGRO: B.S., Fairleigh Dickinson University; D.O., Philadelphia College of Osteopathic Medicine; Instructor in Neurology
- NORMAN D. NIGRO: A.B., M.D., Syracuse University; Professor of Surgery
- ELEANOR NISHIURA: B.A., Illinois College; M.S., Ph.D., Purdue University; Assistant Professor of Community Medicine
- TOGO NISHIURA: B.A., San Jose State College; M.S., Ph.D., Purdue University; Professor of Mathematics
- LOUISE J. NOBILI: B.F.A., M.F.A., Wayne State University; Professor of Art
- DAVID C. NOLAN: M.D., University of Michigan; Associate Professor of Community Medicine and Associate Professor of Comparative Medicine
- SHARON M. NOONAN: B.S., University of Detroit; M.S., Ph.D., Wayne State University; Assistant Professor of Pathology
- DAVID J. NORDSTROM: B.A., University of Michigan; M.A., Ph.D., University of California; Assistant Professor of Mathematics
- JOHN T. NORMAN, JR.: B.S., Wake Forest College; M.A.T., Ph.D., Michigan State University; Associate Professor of Education
- THOMAS F. NOTHAFT: B.F.A., M.A., Wayne State University; Assistant Professor of Family and Consumer Resources
- PETER F. NOWOSIELSKI: B.S., University of Detroit; M.D., University of Ottawa; Clinical Instructor in Family Medicine
- SHIRLEY A. NUSS: B.A., Ph.D., University of Colorado; Assistant Professor of Sociology
- HARVEY NUSSBAUM: B.A., Brooklyn College; Ph.D., Wayne State University; Associate Professor of Management
- HELEN M. NUTTING: B.A., University of Michigan; M.D., Wayne State University; Clinical Assistant Professor of Pediatrics
- VICTOR J. NYBOER: B.A., Olivet College; M.D., Wayne State University; Instructor in Physical Medicine and Rehabilitation
- KATHERYN L. O'CONNOR: A.B., Pembroke College; M.D., Woman's Medical College of Pennsylvania; Clinical Assistant Professor of Internal Medicine
- BARBARA O'KEEFE: B.A., M.A., Ph.D., University of Illinois; Assistant Professor of Speech
- JOHN M. O'LANE: B.S., M.D., University of Washington; Associate Professor of Gynecology and Obstetrics
- HANNA OBERTYNSKI: M.D., Medical Academy, Lublin, Poland; Clinical Instructor in Ophthalmology
- JUDITH ODIORNE: B.S., Boston College; M.S.N., Boston University; Assistant Professor of Nursing
- RONALD ODMARK: B.S., Eastern Michigan University; M.M., Wayne State University; Adjunct Assistant Professor of Music

LEON T. OFCHUS: B.S., East Stroudsburg State College; B.A., University of Wyoming; Ph.D., Wayne State University; Professor of Education

JOSEPH R. OLDFORD: B.S., University of Detroit; M.D., St. Louis University; Clinical Assistant Professor of Urology

JOHN P. OLIVER: B.A., University of Oregon; Ph.D., University of Washington; Professor of Chemistry

JAMES A. OLSON: B.S., M.D., University of Iowa; Clinical Instructor in Ophthalmology

KENNETH J. OLSON: A.B., Kalamazoo College; M.S., Ph.D., Michigan State University; Clinical Associate Professor of Toxicology

CHESTER J. ORDON: B.S., Tufts College; M.S., Harvard University; Professor of Civil Engineering

EDMUND ORDON: B.A., M.A., Wayne State University; Ph.D., University of Ottawa; Professor of Polish

SANFORD M. ORLOW: B.E.E., University of Virginia; Ph.D., Johns Hopkins University; Assistant Professor of Science and Technology

DAVID ORNE: B.S., M.S., Ph.D., University of Michigan; Associate Professor of Mechanical Engineering

JESUS ORTEGA: M.D., University of Barcelona; Assistant Professor (FTA) of Internal Medicine

BERNARD ORTIZ DE MONTELLANO: B.S., Ph.D., University of Texas; Associate Professor of Science and Technology

EUGENE A. OSIUS: M.D., University of Michigan; Clinical Professor Emeritus of Surgery

ENRIQUE OSTREA: A.A., B.S., M.D., University of the Philippines; Associate Professor of Pediatrics

ARTHUR Z. OSTROWSKI: B.S., University of Detroit; M.D., St. Louis School of Medicine; Clinical Assistant Professor of Neurosurgery

JOHN P. OTTAWAY: B.A., M.D., University of Michigan; Associate Professor of Gynecology and Obstetrics

DAVID A. OTTO: Instructor in Restorative Art

DONALD L. OTTO: B.A., Michigan State University; M.D., Wayne State University; Clinical Associate Professor of Radiology

DONALD C. OVERY: B.A., Albion College; M.D., University of Michigan; Clinical Assistant Professor of Internal Medicine

JOHN D. OWEN: A.B., Columbia College; A.M., New York University; Ph.D., Columbia University; Professor of Economics

O. G. OWENS: B.A., M.A., Ph.D., University of California; Professor of Mathematics

DOUGLAS S. PAAUW: A.B., Calvin College; M.A., Ph.D., Harvard University; Professor of Economics

THOMAS A. PADDEN: B.A., Western Michigan University; D.O., Chicago College of Osteopathy; Clinical Instructor in Family Medicine

JINGYAL PAK: B.S., Kent State University; M.S., Ph.D., University of Illinois; Associate Professor of Mathematics

MYUNG SOOK PAK: B.S., M.D., Seoul Women's Medical College; Assistant Professor of Pathology

CHRIS PALACAS: A.B., Harvard University; M.D., Boston University; Assistant Professor (FTA) of Internal Medicine

JANET L. PALLAS: B.A., M.A., Ph.D., Wayne State University; Adjunct Assistant Professor of Psychology

DONALD H. PALMER: B.A., Michigan State Normal College; M.A., Ph.D., University of Michigan; Associate Professor Emeritus of Management

HOPE E. PALMER: B.S., M.A., University of Michigan; Assistant Professor of Urban Humanities

MILTON PALMER: A.B., Lincoln University; M.D., Howard University; Clinical Assistant Professor of Psychiatry

PETER PALMER: M.D., Wayne State University; Clinical Assistant Professor of Orthopedic Surgery

MARGARITA PALUTKE: A.B., M.D., Wayne State University; Associate Professor of Pathology

WALDEMAR A. PALUTKE: M.D., Wayne State University; Associate Professor of Pathology

NED PAPANIA: B.S., M.A., Wayne State University; Ph.D., Michigan State University; Adjunct Assistant Professor of Psychology

EDWARD J. PAPPAS: B.A., M.A., Ph.D., Wayne State University; Chairman and Professor of Speech

FRANK PARCELLS: B.S., Yale University; M.D., Wayne State University; Clinical Associate Professor of Psychiatry

THOMAS PARISH: B.F.A., University of Pennsylvania; M.A., University of North Dakota; Associate Professor of Art

ARTHUR R. PARK: B.A., M.Ed., Ed.D., Pennsylvania State University; Associate Professor of Education

CHARLES J. PARKER, JR.: B.A., M.A., Ph.D., University of Buffalo; Associate Professor of Biochemistry

PHILIP J. PARKER: B.S., University of Michigan; M.D., Wayne State University; Clinical Instructor in Psychiatry

JUDITH I. PARKHURST: A.B., Augustana College; M.A., Indiana University; Ph.D., University of Illinois; Assistant Professor of Geography

RICHARD S. PARKS: B.M., Baldwin-Wallace Conservatory; M.M., Northwestern University; Ph.D., Catholic University of America; Assistant Professor of Music

RICHARD M. PARRIS: B.A., Antioch College; M.Ed., Ed.D., Wayne State University; Associate Professor of Education

CHARLES J. PARRISH: B.A., M.A., University of Florida; Ph.D., University of North Carolina; Co-Director of Institute of Gerontology and Professor of Political Science

RUFUS H. PARRISH: B.S., St. Augustine's College; M.D., Meharry Medical College; Clinical Instructor in Psychiatry

WILLARD H. PARSONS: Ph.D., Professor Emeritus of Geology

H. ROY PARTRIDGE, JR.: B.A., Oberlin College; M.S.W., M.H., University of Michigan; Assistant Professor and Director, Minority Recruitment and Retention, School of Social Work

IRVING PASTER: B.A., M.A., Wayne State University; Ph.D., University of Michigan; Associate Professor of Management

PIYUSHBHAI PATEL: M.B.B.S., Baroda Medical College; Clinical Instructor in Radiology

L. RAJ. S. PATIL: I.Sc., Ferguson College; B.S., Karnatak University; M.B., B.S., M.D., Bombay University; M.S., Wayne State University; Adjunct Assistant Professor of Occupational and Environmental Health

LAWRENCE M. PATRICK: B.S.M.E., B.S.A.E., Wayne State University; Adjunct Professor of Mechanical Engineering

MICHAEL R. PATTISON: B.S., Ph.D., Wayne State University; Instructor in Physics

LLOYD PAUL: B.A., Wayne State University; M.D., Chicago Medical School; Clinical Assistant Professor of Internal Medicine

ROBERT L. PAUL: B.S., Central Michigan University; M.A., Colorado State University; Ph.D., Wayne State University; Adjunct Assistant Professor of Audiology

JAMES M. PAULSON: B.S.C.E., The Citadel; M.S.C.E., Illinois Institute of Technology; Ph.D., University of Michigan; Associate Dean of the College of Engineering and Professor of Civil Engineering

EDWARD S. PEARSALL: B.A., Amherst College; Ph.D., Princeton University; Associate Professor of Finance and Business Economics

FRANK P. PEARSALL: B.A., University of Michigan; M.Ed., Ph.D., Wayne State University; Adjunct Assistant Professor of Psychology

CAROL E. PEARSON: B.S., M.D., University of Michigan; Clinical Associate Professor of Psychiatry

WILLIAM PECK: B.F.A., M.A., Wayne State University; Adjunct Professor of Art

HERBERT E. PEDERSEN: A.B., M.D., University of Michigan; Chairman and Professor of Orthopedic Surgery

MARJORIE PEBBLES-MEYERS: B.A., Hunter College; M.A., Columbia University; M.D., Wayne State University; Clinical Associate Professor of Internal Medicine

ALFRED PELHAM: A.B., University of Michigan; Professor Emeritus of Political Science

LARRY R. PELOK: M.D., University of Cincinnati; Clinical Assistant Professor of Surgery

JOHN J. PELUSO: B.S., M.S., Slippery Rock State College; Ph.D., West Virginia University; Instructor in Gynecology and Obstetrics

DAVID M. PENDERGAST: B.S., M.A., Ph.D., Ohio State University; Associate Professor of Education

GEORGE V. PENDY: B.S., M.D., Wayne State University; Clinical Instructor in Orthopedic Surgery

JOHN M. PENDY: B.S., University of Detroit; M.D., Wayne State University; Clinical Associate Professor of Orthopedic Surgery

LESLIE PENSLER: B.S., M.D., Wayne State University; Associate Professor of Pediatrics

- WILLIAM W. PEPPER: A.B., J.D., West Virginia University; Instructor in Law
- M. HANIF PERACHA: F.Sc., Jamia College; M.B.B.S., Dow Medical College; Clinical Instructor in Ophthalmology
- CARLOS PEREZ-BORJA: M.D., University of Quito Medical School; Assistant Professor of Neurology
- DONALD L. PERKINS: B.S.E., M.S.E., M.E., University of Michigan; Professor Emeritus of Mechanical and Industrial Engineering
- PHILLIP E. PERKINS: M.D., University of Michigan; Clinical Instructor in Radiology
- EUGENE D. PERLE: B.A., Dartmouth College; M.A., Syracuse University; Ph.D., University of Chicago; Associate Professor of Urban Planning
- ALAN M. PERLMAN: B.A., Brown University; M.A., Ph.D., University of Chicago; Assistant Professor of English
- ALAN D. PERIMUTTER: B.A., Harvard College; M.D., Harvard Medical College; Professor of Urology
- EUGENE V. PERRIN: A.B., Wayne State University; M.D., University of Michigan; Associate Professor of Pathology
- JANE C. PERRIN: B.S., Syracuse University; M.S., University of Wisconsin; M.D., Harvard Medical School; Associate Professor of Pediatrics
- HAROLD PERRY: M.D., Howard University; Clinical Associate Professor of Radiology
- GILMOUR M. PETERS: B.S., Eastern Michigan University; M.S., University of Michigan; Ph.D., Wayne State University; Instructor (FTA) in Audiology
- MILDRED PETERS: Ph.D., Professor Emeritus of Education
- R. DUANE PETERSON: B.A., M.Ed., University of Montana; Ed.D., University of Washington; Professor of Education
- WILBUR J. PETERSON: B.A., Augustana College; M.S., Oregon State University; Ed.D., University of Oregon; Professor of Music
- PATRICK PETIT: B.A., Wayne State University; M.A., University of Kansas; Assistant Professor of Social Science
- EDWARD A. PETOSKEY: B.S., M.D., Wayne State University; Clinical Instructor in Family Medicine
- ERNEST N. PETRICK: B.S.M.E., Carnegie Technical University; M.S.M.E., Ph.D., Purdue University; Adjunct Professor of Electrical and Computer Engineering
- ANTHONY PETRILLI: B.A., University of Michigan; M.D., Wayne State University; Assistant Professor of Psychiatry
- MARIO A. PETRINI: B.A., M.D., Wayne State University; Clinical Associate Professor of Gynecology and Obstetrics
- CHRIST PETROULEAS: B.S., M.E., Wayne State University; Assistant Professor of Health and Physical Education
- GREGORY A. PETSKO: B.A., Princeton University; D.Phil., Oxford University; Assistant Professor of Biochemistry
- LOIS PETTIT: B.A., M.A., University of Chicago; Associate Professor, School of Social Work
- THOMAS A. PETTY: B.S., M.D., Indiana University; Clinical Professor of Psychiatry
- THOMAS PETZ: B.S., University of Detroit; M.D., Wayne State University; Clinical Associate Professor of Internal Medicine
- PHILIP S. PEVEN: B.A., Wayne State University; M.S., Northwestern University; M.D., University of Michigan; Clinical Assistant Professor of Gynecology and Obstetrics
- PAULINE PEVIN: B.A., M.D., Tufts College; Clinical Instructor in Pediatrics
- SERGIO PEZZETTI: Adjunct Assistant Professor of Music
- ARVIN I. PHILIPPART III: A.B., University of Michigan; M.D., Harvard University; Assistant Professor of Surgery
- EDITH B. PHILLIPS: B.A., Eastern Michigan University; A.M.L.S., University of Michigan; Associate Professor of Education
- ELIZABETH J. PHILLIPS: B.A., Brown University; M.S.W., University of Pittsburgh; Associate Professor, School of Social Work
- ROBERT A. PICCIRELLI: B.A., M.S., Ph.D., The Catholic University of America; Professor of Mechanical Engineering
- DIANE C. PICK: B.S., University of Wisconsin at Oshkosh; M.A., Central Michigan University; R.E.D., Indiana University; Assistant Professor of Recreation and Park Services
- LEONARD PICKERING: B.S., M.D., Wayne State University; Clinical Instructor in Orthopedic Surgery
- JAMES M. PIERCE, JR.: B.A., Oberlin College; M.D., University of Cincinnati; Chairman and Professor of Urology
- GUY PIERRET: B.S., M.D., Wayne State University; Clinical Instructor in Orthopedic Surgery
- JOHN J. PIETROFESA: B.Ed., M.Ed., Ed.D., University of Miami; Professor of Education
- LEONARD R. PIGGOTT: B.S., M.D., University of Michigan; M.S., Wayne State University; Associate Professor of Psychiatry
- JOHN T. PILIGIAN: B.S., M.S., M.D., Wayne State University; Assistant Professor of Pathology
- ARNOLD R. PILLING: B.A., Ph.D., University of California at Berkeley; Professor of Anthropology
- VERN M. PINGS: Ph.B., University of Chicago; B.A., University of Wisconsin; M.A., Columbia University; M.A., Ph.D., University of Wisconsin; Professor, School of Medicine and Director of University Libraries
- HERMANN PINKUS: M.D., Friedrich Wilhelm University; M.S., University of Michigan; Professor Emeritus of Dermatology and Syphilology and Professor of Pathology
- WILLIAM E. PITNEY: B.A., New York State University; M.F.A., New York State University at Alfred; Professor Emeritus of Art
- KENNETH PITTS: M.D., Washington University; Clinical Associate Professor of Psychiatry
- HENRY H. PIXLEY: A.M., Stetson University; M.S., Ph.D., University of Chicago; Associate Professor Emeritus of Mathematics
- F. RICHARD PLACE: A.B., Miami University; A.M., Ohio State University; Ph.D., University of Minnesota; Assistant Professor of History
- JOHN C. PLANT: B.S., M.B., University of London; Assistant Professor of Surgery
- ZYGMUNT J. B. PLATER: A.B., Princeton University; J.D., Yale University; Associate Professor of Law
- FRANCIS E. PLONKA: B.S.I.E., M.S.I.E., Wayne State University; Ph.D., University of Michigan; Assistant Professor of Engineering Technology
- HAROLD PLOTNICK: A.B., Dartmouth College; M.D., Wayne State University; Clinical Associate Professor of Dermatology and Syphilology
- EUGENE I. PLOUS: B.S., M.Sc., University of Michigan; M.D., Chicago Medical School; Adjunct Assistant Professor of Anatomy
- ROBERT POHL: M.D., Wayne State University; Instructor in Psychiatry
- JEANNETTE POINDEXTER: B.S.N., M.S.N., Washington University; Associate Professor of Nursing
- MARILYN POLAND: B.S., University of Maryland; M.S., Boston University; Instructor in Gynecology and Obstetrics and Instructor in Nursing
- RONALD POLAND: B.A., Villanova University; M.D., Jefferson Medical College; M.A., Johns Hopkins University; Associate Professor of Pediatrics
- GEORGE POLGAR: M.D., University of Izzeged; Professor of Pediatrics
- JOHN J. POLLACK: M.D., University of Toronto; Clinical Associate Professor of Pediatrics
- LOUIS S. POLLENS: B.A., M.D., Ohio State University; Clinical Assistant Professor of Internal Medicine
- J. EDSON PONTES: B.A., Colegio S. Joas; M.D., Federal University of Ceara; Associate Professor of Urology
- WALTER D. POOL: A.B., M.D., University of Michigan; Director of Mortuary Science and Instructor in Medical Science
- VALTER POOLE: Diploma; Professor Emeritus of Music
- CAROL PORTER: B.S., M.S.N., Indiana University; Assistant Professor of Nursing
- HAROLD D. PORTNOY: B.S., M.D., Wayne State University; Clinical Assistant Professor of Neurosurgery
- JOSEPH L. POSCH: B.S., St. Thomas College; M.D., University of Minnesota; Clinical Professor of Surgery
- IRVING POSNER: B.A., M.D., Wayne State University School of Medicine; Clinical Assistant Professor of Pediatrics
- HERMANN D. POSTER: B.A., University of Berlin; M.A., Lehigh University; Ph.D., New York University; Associate Professor of German
- CHARLES POSTLEWATE: B.M.E., General Motors Institute; B.M., M.M., Wayne State University; Adjunct Assistant Professor of Music
- ROBERTA G. POURCHO: B.S., University of Michigan; Ph.D., Wayne State University; Assistant Professor of Anatomy

JOSEPH T. POWASER: M.D., Marquette University; Clinical Assistant Professor of Pathology

HAROLD F. POWELL: Ph.D.; Professor Emeritus of Education

LAWRENCE H. POWER: B.A., M.D., University of Western Ontario; Professor (FTA) of Internal Medicine

LAWRENCE H. POWERS: B.A., Wayne State University; Ph.D., Cornell University; Assistant Professor of Philosophy

WENDELL H. POWERS: B.S., Middlebury College; M.S., University of New Hampshire; Ph.D., Columbia University; Professor of Chemistry

EDWARD R. POWSNER: S.B., S.M., Massachusetts Institute of Technology; M.S., Wayne State University; M.D., Yale University; Professor of Pathology

N. D. PRABHAKAR: B. Stat., M. Stat., Ph.D., Indian Statistical Institute; Assistant Professor of Mathematics

ANANDA S. PRASAD: B.S., M.B., B.S., Patna University; Ph.D., University of Minnesota; Professor of Internal Medicine

BALA S. PRASAD: I.S., Bihar University; M.B.B.S., Patna Medical School; Assistant Professor of Orthopedic Surgery

HENRY J. PRATT: B.A., Dartmouth College; M.P.A., University of Michigan; Ph.D., Columbia University; Associate Professor of Political Science

CONSTANTIN PREDETEANU: M.D., College of Human Medicine, Bucharest; M.S., Wayne State University; Clinical Instructor in Dermatology and Syphilology

JOSEPH PRESCOTT: A.B., M.A., Ph.D., Harvard University; Professor of English

BARBARA PRICE: B.S., Utah State University; Ph.D., University of Utah; Assistant Professor of Finance and Business Economics

FRANCES M. PRIEST: B.A., Denison University; M.S.W., University of Michigan; Associate Professor Emeritus, School of Social Work

ADDISON E. PRINCE: B.S., M.D., Wayne State University; Clinical Assistant Professor of Gynecology and Obstetrics

GEERT C. E. PRINS: B.A., Haverford College; M.A., Ph.D., University of Michigan; Associate Professor of Mathematics

JULIEN PRIVER: B.S., College of the City of New York; M.D., University of Western Ontario; Adjunct Professor of Community Medicine

BRUCE PROCTOR: M.D., University of Michigan; Clinical Professor of Otolaryngology

FRANK W. PRUST: B.S., Rutgers University; M.D., New York University; Clinical Instructor in Surgery

WILLIAM PRYCHODKO: Ph.D., University of Munich; Professor of Biology

SIDNEY PRYSTOWSKY: B.S., College of Charleston; M.D., Medical College of South Carolina; Clinical Instructor in Internal Medicine

JOHN X. PRZYBYSZ: B.S., Michigan State University; M.S., Ph.D., University of Wisconsin; Instructor in Physics

DOMINIC L. PUCCI: A.B., George Washington University; A.M., Ph.D., Harvard University; Professor Emeritus of Spanish and Italian

DOROTHEA PUCKETT: B.S.N., Vanderbilt University; M.S.N., Ph.D., University of Michigan; Assistant Professor of Nursing

ANDRE PUGEL: M.D., Ljubljana Medical School; Instructor in Neurology

NIRA J. PULLIN: B.A., University of Evansville; M.A., Wayne State University; Instructor in Speech

PRITPAL S. PURI: M.B.B.S., M.D., University of Poona; Professor of Internal Medicine

VIMAL PRITPAL PURI: B.Sc., S.P., College; M.B.B.S., B.J. Medical College; Instructor in Psychiatry

HENRY E. PURO: A.B., M.D., Stanford University; Associate Professor of Pathology

STEWART E. PURSEL: A.B., Princeton University; M.D., Yale University; Clinical Assistant Professor of Surgery

JAMES W. PUTNEY, JR.: B.A., University of Virginia; Ph.D., Medical College of Virginia; Assistant Professor of Pharmacology

HELENA M. PYCIOR: B.A., Molloy College; M.A., Ph.D., Cornell University; Assistant Professor of Science and Technology

ALIDA D. QUICK: B.S., M.A., Ph.D., Michigan State University; Assistant Professor of Psychology

JAMES H. QUINA, JR.: B.S., Auburn University; M.A., University of South Mississippi; Ph.D., University of Alabama; Associate Professor of Education

PATRICIA A. QUINLAN: Ph.B., University of Detroit; M.A., Wayne State University; Associate Professor of Art

MORTON RABAN: B.A., Harvard College; M.A., Ph.D., Princeton University; Professor of Chemistry

ALI RABBANI: M.D., Teheran Medical School; Clinical Assistant Professor of Pediatrics

SALVATORE RABBIO: B.M., Boston University; Adjunct Associate Professor of Music

NIKOLAI RACHMANINOFF: M.D., University of Frankfurt Main; Assistant Professor of Pathology

RICHARD L. RADER: B.S., Trinity College; Ph.D., University of Connecticut; Assistant Professor of Immunology and Microbiology

NICHOLAS RADOUL: B.A., Mihaj Viteazul Lyceum; M.D., Laval University; Clinical Assistant Professor of Internal Medicine

JOSE A. RAFOLS: B.S., St. Procopius College; Ph.D., Kansas University Medical Center; Associate Professor of Anatomy

RUKMANI RAGHUNATHAN: M.B.B.S., Kilpauk Medical College; Instructor in Pediatrics

ABNER RAGINS: M.D., Wayne State University; Clinical Assistant Professor of Internal Medicine

HOMAYOON RAHBARI: A.B., M.A., M.D., Indiana University; Clinical Instructor in Dermatology and Syphilology

MELVYN C. RAIDER: B.B.A., City College School of New York; M.B.A., Ph.D., Wayne State University; Assistant to the Dean and Associate Professor, School of Social Work

JOHN M. RAINEY, JR.: B.A., M.D., Ph.D., Vanderbilt University; Assistant Professor of Psychiatry

GERALD RAKOTZ: B.A., M.D., Wayne State University; Clinical Instructor in Family Medicine

ALVARO RAMOS: M.D., University of Cartagena, Columbia; Clinical Instructor in Radiology

DAISY P. RAMOS: A.A., Aklan College, Philippines and Far Eastern University; M.D., Far Eastern University; Clinical Instructor in Dermatology and Syphilology

MAURICE M. RAMSEY: B.A., M.A., Wayne State University; Ph.D., University of Michigan; Professor Emeritus of Political Science

NANCY RANCILIO: B.S.N., Villanova University; M.S.N., Wayne State University; Instructor in Nursing

MAURY RANDALL: B.A., New York University; M.A., University of Chicago; Ph.D., New York University; Assistant Professor of Finance and Business Economics

EDWARD T. RANEY: B.A., Marysville College; M.S., Ph.D., Brown University; Professor Emeritus of Management

N. RANGANATHAN: B.S., Loyola College of Madras; M.S., Brown University; Ph.D., Polytechnic Institute of New York; Assistant Professor of Mathematics

RAZIA RAOUF: M.D., Nishtar Medical College; Instructor in Radiology

BERNARD RAPOPORT: A.B., Yale University; M.D., Harvard University; Clinical Instructor in Internal Medicine

VICTOR A. RAPPORT: Ph.B., Ph.D., Yale University; Professor Emeritus of Anthropology

HERBERT A. RASKIN: A.B., M.S.P.H., University of Michigan; M.D., Wayne State University; Clinical Professor of Psychiatry

RICHARD RASPA: B.S., St. Joseph's College; M.A., Ph.D., University of Notre Dame; Assistant Professor of Communications Skills

JOHN J. RATH: B.S., University of Detroit; M.B.A., New York University; Assistant Dean of the School of Business Administration and Associate Professor of Marketing

WILLIAM H. RATTNER: B.A., Washington and Lee University; M.D., University of Michigan; Clinical Assistant Professor of Urology

HELENE C. RAUCH: B.A., Ph.D., University of California at Los Angeles; Associate Professor of Immunology and Microbiology

ALAN RAUCHER: B.A., University of California at Los Angeles; M.A., Ph.D., University of Pennsylvania; Associate Professor of History

SARALA RAVIKANT: M.B.B.S., Osmania University; Instructor in Internal Medicine

- MEL J. RAVITZ: B.A., Wayne State University; M.A., New School for Social Research; Ph.D., University of Michigan; Professor of Sociology
- GORDON B. RAY: A.B., A.M., Ph.D., Harvard University; Professor Emeritus of Spanish
- JOSEPH R. RAZEK: B.A., Ohio Wesleyan University; M.B.A., University of Michigan; Ph.D., University of Illinois at Urbana-Champaign; Assistant Professor of Accounting
- MOHAMMED A. RAZZAQUE: I.Sc., Dacca College; M.D., King Edward Medical College; Clinical Assistant Professor of Internal Medicine
- MARIAN I. REAVEY: B.A., Albion College; M.S.W., University of Michigan; Associate Professor, School of Social Work
- JOHN W. REBUCK: A.B., Creighton University; M.A., M.B., M.D., Ph.D., University of Minnesota; Clinical Professor of Pathology
- GENE P. RECK: B.S., University of Illinois; Ph. D., University of Minnesota; Professor of Chemistry
- FOSTER K. REDDING: Ph.D., McGill University; M.D., University of Pennsylvania; Professor of Neurology
- ILA SHAH REDDY: M.B.B.S., University of Bombay; Instructor in Internal Medicine
- V. N. REDDY: B.S., Nizam College; M.S., Ph.D., Fordham University; Clinical Associate Professor of Ophthalmology
- FRITZ REDL: Ph.D., Distinguished Professor Emeritus of Education
- MICHAEL M. REECE: B.A., University of Denver; M.A., Stanford University; Ph.D., New York University; Associate Professor of Psychology
- ALLEN H. REED: A.B., University of California; M.S., New York University; Ph.D., University of California at Los Angeles; Associate Professor of Community Medicine
- JOHN R. REED: B.A., University of Minnesota; Ph.D., University of Rochester; Professor of English
- JOSEPH O. REED: B.A., M.D., University of Michigan; Clinical Professor of Radiology
- LAZARUS REED, JR.: B.S., Wayne State University; M.D., University of Kansas; Instructor (FTA) in Internal Medicine
- MELVIN L. REED: B.A., Kalamazoo College; M.D., University of Michigan; Associate Professor of Oncology
- ROBERT L. REED: B.A., Colgate University; LL.B., Boston College; Adjunct Professor of Law
- SUSAN F. REED: B.A., University of Michigan; M.Ed., J.D., Wayne State University; Instructor in Law
- JERRY R. REEL: B.A., Indiana State University; M.S., Ph.D., University of Illinois; Adjunct Associate Professor of Physiology
- BARBARA STONE REETZ: B.A., M.A., Michigan State University; Instructor in English
- ANDREW L. REEVES: Dipl. Chem., University of Munich; Ph.D., Wayne State University; Professor of Occupational and Environmental Health
- CARL E. REICHERT, JR.: A.B., Princeton University; M.D., Hahneman Medical School; Clinical Instructor in Orthopedic Surgery
- GEORGIA REID: B.S., State University of New York at Cortland; M.A., Mills College; Assistant Professor of Dance
- SANDY G. REID: B.S., Alabama State College; M.S.W., Atlanta University; Associate Professor, School of Social Work
- WILLIAM U. REIDT: B.S., Bucknell University; M.D., Jefferson Medical College; Clinical Instructor in Internal Medicine
- DOROTHY REILLY: B.S., Columbia University; M.S., Boston University; Ed.D., New York University; Professor of Nursing
- HOWARD E. REILLY: B.A., M.Ed., Ed.D., Wayne State University; Head of the Division of Academic Services and Professor of Education
- ALAN REINSTEIN: B.A., M.S., State University of New York; M.B.A., University of Detroit; Assistant Professor of Accounting
- NORBERT REINSTEIN: B.S., University of Vienna; M.P.H., University of Minnesota; Adjunct Associate Professor of Community Medicine
- WILHELM REITZ: Ph.D.; Professor Emeritus of Education
- A. EDWARD REMICK: B.S., Cornell University; Ph.D., University of Chicago; Professor Emeritus of Chemistry
- JANE W. RENAUD: B.S., M.S., Wayne State University; Adjunct Assistant Professor of Geology
- PHILLIP M. RENNICK: B.S., Northwestern University; Ph.D., University of Chicago; Adjunct Professor of Psychology
- BARBARA J. RENNIE: B.A., Marygrove College; M.A.T., Wayne State University; Instructor in Education
- GEORGE L. RENO: B.A., University of Detroit; M.D., St. Louis University; Clinical Instructor in Urology
- LOUIS E. RENTZ: B.S., University of Detroit; D.O., Chicago College of Osteopathy; Assistant Professor of Neurology
- MARY ANN RENZ: B.A., Western Michigan University; M.A., Wayne State University; Instructor in Speech
- JOEL RESNICK: J.D., Northwestern University; Adjunct Professor of Law
- ANDRES RESTOSOTO: M.D., University of Michigan; Clinical Assistant Professor of Surgery
- EARL RESWEBER: A.B., Southwestern Louisiana University; A.M., University of Michigan; Associate Professor Emeritus of French
- V. GWEN RETHERFORD: B.S., Eastern Michigan University; M.Ed., Ed.D., Wayne State University; Professor of Education
- WILLIAM S. REVENO: Ph.C., B.S., University of Michigan; M.D., Wayne State University; Clinical Associate Professor of Internal Medicine
- MILAGROS P. REYES: M.D., University of the Philippines; Assistant Professor of Internal Medicine
- CHOON-JAI RHEE: B.A., University of the South; M.A., Ph.D., University of Georgia; Associate Professor of Mathematics
- HYOMYEONG RHIEW: M.D., Seoul National University; Clinical Assistant Professor of Psychiatry
- DUANE RHOADES: B.A., M.A., Brigham Young University; Ph.D., University of Illinois; Instructor in Spanish
- RONALD L. RHULE: B.S., Wayne State University; D.O., Michigan State University; Clinical Instructor in Family Medicine
- MARY RICCIARDI: B.A., M.A., Indiana University; Instructor in Italian
- DOMINIC RICCIOTTI: B.F.A., Washington University; M.A., Hunter College; Instructor in Art History
- THEODORE D. RICE: Ph.D.; Professor Emeritus of Education
- WILLIAM J. RICE: B.S., Michigan State University; M.D., Wayne State University; Clinical Instructor in Otolaryngology
- ANTHONY RICH: M.D., University of Michigan; Instructor in Psychiatry
- LAWRENCE M. RICHARD: B.S., M.B.A., Ph.D., Louisiana State University; Assistant Professor of Marketing
- AMY K. RICHARDS: B.A., M.A., Wayne State University; Associate Professor of English
- DORIS L. RICHARDS: B.M., University of Michigan; M.M., Wayne State University; Associate Professor of Music
- RITA C. RICHEY: B.A., M.A., University of Michigan; Ph.D., Wayne State University; Assistant Professor of Education
- ANNETTE U. RICKEL: B.A., Michigan State University; M.A., Ph.D., University of Michigan; Assistant Professor of Psychology
- WILFRED A. RIDDELL: M.D., University of Toronto; Clinical Instructor in Otolaryngology
- JEANNE M. RIDDLE: B.S., Pennsylvania State University; M.S., Ph.D., Wayne State University; Associate Professor of Pathology
- VERA F. RIGHTHAND: B.A., University of Rochester; Ph.D., Rutgers State University; Associate Professor of Immunology and Microbiology
- SEYMOUR RIKLIN: B.A., Wayne State University; M.A., University of Chicago; Associate Professor of Urban Humanities
- JAMES A. RILLEMA: B.S., Calvin College; M.S., Ph.D., Michigan State University; Associate Professor of Physiology
- CHOON SOO RIM: M.D., Seoul National University; Instructor in Neurology
- JOSEPH RINALDO: B.S., M.D., Harvard University; Clinical Assistant Professor of Internal Medicine
- REED W. RINGS: D.V.M., M.S., University of Missouri; Adjunct Assistant Professor of Comparative Medicine
- EDWARD A. RIORDAN: B.A., Michigan State University; M.B.A., University of Missouri; D.B.A., University of Kentucky; Assistant Professor of Marketing
- JAMES A. RISING: M.D., Tulane University; Clinical Assistant Professor of Pathology

SIGURD I. RISLOV: B.A., Dakota Wesleyan University; M.A., State University of Iowa; Ph.D., University of Washington; Professor of Education

GEORGE RISTOW: B.A., Albion College; D.O., College of Osteopathic Medicine; Instructor in Neurology

GEORGE RITTER: B.S., M.D., Wayne State University; Clinical Instructor in Internal Medicine

GORDON E. RIVERS: B.S., B.S.I.E., Wayne State University; M.A., University of Michigan; Professor Emeritus of Mechanical Engineering Sciences

JOSEPH RIVKIN: B.S., M.D., Wayne State University; Clinical Instructor in Pediatrics

PAUL RIZZO: B.A., M.D., Wayne State University; Clinical Assistant Professor of Surgery

HERBERT J. ROBB: A.B., M.D., University of Michigan; Clinical Associate Professor of Surgery

ROCHELLE L. ROBBINS: B.A., University of Rochester; M.S., Ph.D., University of Pittsburgh; Assistant Professor of Psychology

THOMAS O. ROBBINS: B.S., M.D., University of Minnesota; Clinical Assistant Professor of Pathology

AUBREY C. ROBERTS: B.A., M.B.A., University of Michigan; Chairman and Professor of Accounting

ELLIOTT G. ROBERTS: B.S., Morgan State College; M.A., George Washington University; Adjunct Assistant Professor of Community Medicine

CAROL A. ROBERTSON: B.S., Wayne State University; Instructor in Anesthesia

EARL J. ROBERTSON: B.S. (Pharmacy), Pharm.D., University of Michigan; Assistant Professor of Clinical Pharmacy

DALE O. ROBINSON: B.A., Western Michigan University; M.A., Colorado State College; Ph.D., Wayne State University; Assistant Professor of Audiology

JAMES K. ROBINSON: B.A., Michigan State University; J.D., Wayne State University; Adjunct Professor of Law

ROY E. ROBINSON: Professor Emeritus of Education

MARY M. ROBISCHON: B.A., American International College; M.A., Smith College; Ph.D., University of Michigan; Instructor in Social Science

G. ELAINE ROCCHIO: S.B., Massachusetts Institute of Technology; Instructor in Anthropology

MARY F. ROCKAFELLOW: B.A., University of Minnesota; M.S., University of Wisconsin at Milwaukee; Assistant Professor of Education

MARTHA K. RODIN: R.N., B.S., Wagner College; M.S., Ph.D., Wayne State University; Associate Professor of Anatomy

HAROLD RODNER: B.A., M.D., Wayne State University; Clinical Instructor in Internal Medicine

LEONARD O. ROELLIG: A.B., M.S., Ph.D., University of Michigan; Professor of Physics

ROBERT P. ROESSER: B.S.E.E., M.S.E.E., Ph.D., State University of New York at Buffalo; Assistant Professor of Electrical and Computer Engineering

ELAINE ROGAN: B.A., Case Western Reserve University; M.A., Ph.D., Wayne State University; Adjunct Instructor in Psychiatry

CLAUDE M. ROGERS: A.B., Indiana University; M.A., Ph.D., University of Michigan; Professor of Biology

EVELYN ROGERS: B.S., Tennessee A. and I. University; M.Ed., Wayne State University; M.P.N., University of Michigan; Adjunct Assistant Professor of Community Medicine

BEATRICE ROGOWSKI: B.S., Wayne State University; Instructor in Education

PIETER K. ROL: Doctorandus in Physics; Ph.D., University of Amsterdam; Associate Dean of the College of Engineering and Professor of Chemical and Metallurgical Engineering

MICHAEL E. ROLLINS: B.S., University of Michigan; M.D., Wayne State University; Clinical Instructor in Otolaryngology

CARL ROLLYSON, JR.: B.A., Michigan State University; M.A., Ph.D., University of Toronto; Assistant Professor of Urban Humanities

WILLIAM B. ROLNICK: B.S., Brooklyn College; A.M., Ph.D., Columbia University; Associate Professor of Physics

JOHN A. ROMAS: B.S., Springfield College; M.S., State University of New York at Cortland; M.P.H., University of Tennessee; Ph.D., University of Michigan; Assistant Professor of Health and Physical Education

ALEJO E. ROMERO-HERRERA: M.D., National University of Mexico; Ph.D., University of Cambridge; Assistant Professor of Anatomy

ISMAEL ROMERO: M.D., University of Madrid; Instructor in Internal Medicine

JANE RONAN: B.S.N., Wayne State University; M.S., University of Chicago; Associate Professor of Nursing

LUCIANO B. RONCA: B.S., University of Padua; M.S., Ph.D., University of Kansas; Professor of Geology

JANET RONCELLI: B.A., Marygrove College; M.A., Wayne of Chicago; Associate Professor of Nursing

CHARLES ROONEY: B.A., Sacred Heart College; S.T.B., Gregorian University; Ph.D., University of Michigan; Assistant Professor of Science of Society

ROBERT ROONEY: B.S., University of Detroit; M.D., University of Michigan; Clinical Instructor in Pediatrics

DAVID B. RORABACHER: B.S., University of Michigan; Ph.D., Purdue University; Professor of Chemistry

MELVIN ROSAS: B.F.A., Drake University; M.F.A., Tyler School of Art, Temple University; Assistant Professor of Art

ARTHUR ROSE: B.A., M.D., University of Michigan; Clinical Assistant Professor of Internal Medicine

GORDON W. ROSE: B.A., Wayne State University; M.S., University of Detroit; Ph.D., University of Michigan; Associate Professor of Mortuary Science

JUDITH A. ROSE: B.S., Michigan State University; Assistant Professor of Journalism

NOEL R. ROSE: B.S., Yale University; A.M., Ph.D., University of Pennsylvania; M.D., State University of New York at Buffalo; Chairman and Professor of Immunology and Microbiology

HAROLD ROSEN: B.A., M.D., Wayne State University; Clinical Instructor in Gynecology and Obstetrics

HARVEY ROSEN: B.A., B.S., M.D., University of Minnesota; Assistant Professor of Psychiatry

HJALMAR ROSEN: B.A., M.A., Ph.D., University of Minnesota; Professor of Psychology

RUTH ALICE HUDSON ROSEN: B.A., Rockford College; M.A., Columbia University; Ph.D., Yale University; Associate Professor of Sociology

GERALD ROSENBAUM: B.A., Brooklyn College; M.A., Ph.D., State University of Iowa; Professor of Psychology

HERBERT ROSENBAUM: B.S., M.D., University of Michigan; Clinical Associate Professor of Internal Medicine

BARBARA F. ROSENBERG: B.A., Wellesley College; M.D., Yale University; Professor of Pathology

IRWIN K. ROSENBERG: B.S., Franklin and Marshall College; M.D., Yale University; Professor of Surgery

JERRY C. ROSENBERG: B.S., Wagner College; M.D., Chicago Medical School; Ph.D., University of Minnesota; Professor of Surgery

ALBERT ROSENTHAL: B.S., Lawrence Institute of Technology; M.D., University of Western Ontario; Clinical Instructor in Gynecology and Obstetrics

STANLEY L. ROSENTHAL: B.F.A., Carnegie-Mellon University; M.F.A., Wayne State University; Assistant Professor of Art

NORMAN ROSENZWEIG: M.D., Chicago Medical School; M.S., University of Michigan; Professor of Psychiatry

KARL W. ROSKAMP: B.A., University of Frankfurt; M.A., Ph.D., University of Michigan; Professor of Economics

MERVYN B. ROSS: M.D., University of Toronto; Clinical Instructor in Family Medicine

NATALIE M. ROSS: B.A., Wayne State University; M.S.W., University of Michigan; Assistant Professor, School of Social Work

RAYMOND S. ROSS: Ph.B., M.A., Marquette University; Ph.D., Purdue University; Professor of Speech

WOODBURN O. ROSS: A.B., A.M., University of Missouri; Ph.D., Yale University; Dean Emeritus and Professor Emeritus of Monteith College

JOAN ROSSI: B.M., Boston Conservatory of Music; M.M., University of Michigan; Adjunct Assistant Professor of Music

HERBERT ROSSIN: M.D., University of Michigan; Clinical Instructor in Internal Medicine

SOL ROSSMAN: B.A., Wayne State University; M.A., Ph.D., University of Michigan; Associate Professor of French

HAROLD W. ROSSMOORE: B.S., M.S., Ph.D., University of Michigan; Professor of Biology

- ALEXANDER N. ROTA: M.Sc., McGill University; M.D., University of Toronto; Clinical Assistant Professor of Pathology
- MARIA ROTH: B.A., M.A., Wayne State University; Ph.D., University of Michigan; Assistant Professor of German
- MARK S. ROTH: B.A., Wayne State University; M.D., University of Michigan; Clinical Instructor in Pediatrics
- ERHARD W. ROTHE: B.S., University of Michigan; M.S., New York University; Ph.D., University of Michigan; Professor of Chemical Engineering
- WILLIAM ROTHMAN: B.A., University of Michigan; M.S.H.A., Columbia University; Adjunct Assistant Professor of Community Medicine
- EVERETT N. ROTTENBERG: B.A., M.D., University of Michigan; M.S., University of Minnesota; Clinical Assistant Professor of Internal Medicine
- PATRICIA A. ROUBIE: B.S. (Pharmacy), Pharm.D., University of Michigan; Adjunct Instructor in Hospital Pharmacy
- ALEYA ROUCHDY: B.A., American University of Cairo; M.A., Ph.D., University of Texas; Associate Professor of Near East and Asian Studies
- DANIEL L. ROURKE: B.A., M.A., Ph.D., University of California at Los Angeles; Assistant Professor of Psychology
- WILLIAM J. ROWELL: B.S., Duke University; Ph.D., University of North Carolina; Adjunct Assistant Professor of Psychology
- L. JAMES ROY: B.S., M.D., Wayne State University; Assistant Professor of Orthopedic Surgery
- RICHARD R. ROYER: B.A., Denison University; M.D., Wayne State University; Clinical Assistant Professor of Otolaryngology
- JURIJ ROZHIN: B.S., Ph.D., Wayne State University; Assistant Professor of Biochemistry
- MELVYN RUBENFIRE: B.S., M.D., Wayne State University; Assistant Professor (FTA) of Internal Medicine
- RALPH RUBENSTEIN: B.Ph., M.D., Wayne State University; Assistant Professor of Psychiatry
- ELI Z. RUBIN: A.B., Harvard College; M.A., Ph.D., Boston University; Adjunct Professor of Psychology
- WILLIAM RUBINOFF: B.S., Wayne State University; M.D., University of Michigan; Clinical Instructor in Pediatrics
- PAUL E. RUBLE: B.A., M.D., Vanderbilt University; Associate Professor of Internal Medicine
- EARL J. RUDNER: B.S., Wayne State University; M.D., Wayne State University School of Medicine; Associate Professor of Dermatology and Syphilology
- ALBERT D. RUEDEMANN, JR.: B.A., Williams College; M.D., University of Michigan; Clinical Associate Professor of Ophthalmology
- MILTON RUEGER: A.B., University of Michigan; M.D., Wayne State University; Clinical Assistant Professor of Internal Medicine
- RICHARD RUEL: A.B., Dartmouth College; M.D., Harvard University; Clinical Assistant Professor of Internal Medicine
- JAMES RUFFNER: B.Sc., Ohio State University; M.S., University of Michigan; A.M., Ph.D., Indiana University; Associate Professor of Natural Science
- JOHN RUHLMAN: B.A., Rutgers University; M.A., Ph.D., University of California at Berkeley; Assistant Professor of English
- THOMAS C. RUMBLE: B.A., M.A., Ph.D., Tulane University; Professor of English
- JUDITH RUNK: B.S.N., Seton Hall University; M.Ed., Columbia University; Assistant Professor of Nursing
- JOHN R. RUNYAN: A.B., University of Michigan; J.D., Wayne State University; Adjunct Professor of Law
- CLARENCE E. RUPE: A.B., Baker University; M.D., Washington University; Clinical Associate Professor of Internal Medicine
- ROBERT L. RUSKIN: B.A., M.D., University of Michigan; Clinical Assistant Professor of Radiology
- BETTY RUSNACK: B.A., Judson College; M.S.W., University of Michigan; Professor, School of Social Work
- AARON L. RUTLEDGE: B.A., Stetson University; M.A., Ph.D., Theological Seminary, Louisville; Professor of Gynecology and Obstetrics
- JULIUS RUTZKY: B.S., College of the City of New York; M.D., New York University; Clinical Professor of Medicine
- RICHARD RUZUMNA: B.A., University of Michigan; M.D., Wayne State University; Assistant Professor of Psychiatry
- JACK RYAN: B.A., Western Michigan University; M.D., Wayne State University; Clinical Assistant Professor of Family Medicine
- JAMES R. RYAN: M.D., Wayne State University; Assistant Professor of Orthopedic Surgery
- RICHARD D. RYSZEWSKY: B.A., Wayne State University; M.D., University of Michigan; Clinical Assistant Professor of Pediatrics
- HENRY W. SAAD: J.D., Wayne State University; Adjunct Professor of Law
- PAUL SABATINI: B.A., M.A., Wayne State University; Instructor in Family and Consumer Resources
- ANTHONY G. SACCO: B.A., University of Rochester; M.S., Ph.D., University of Tennessee; Assistant Professor of Gynecology and Obstetrics
- HERBERT K. SACHS: Diploma, Cantonales Technikum; M.S., Wayne State University; Dr.-Ing., Technische Universitaet; Professor of Mechanical Engineering
- CONSTANTINA SAFILIOS-ROTHSCHILD: Diploma in Agriculture, Agricultural College of Athens; M.S., Ph.D., Ohio State University; Professor of Sociology
- EDMUNDO SAGASTUME: M.D., University of San Carlos; Assistant Professor of Internal Medicine
- VINOD K. SAHNEY: B.Sc., Ranchi University; M.S.M.E., Purdue University; Ph.D., University of Wisconsin; Associate Professor of Industrial Engineering and Operations Research
- SAUL SAKWA: B.S., M.D., Wayne State University; Clinical Assistant Professor of Surgery
- JOYCE SALANCY: B.S., M.S., Wayne State University; Adjunct Instructor in Medical Technology
- ISABEL SALAS: B.A., M.Ed., Wayne State University; Assistant Professor of Chicano-Boricua Studies
- GINO G. SALCICCIOLI: B.S., M.D., Wayne State University; Assistant Professor of Orthopedic Surgery
- JOSEPH SALES, SR.: B.S., M.Ed., Ed.D., Wayne State University; Assistant Dean of the College of Education and Associate Professor of Education
- MICHAEL S. SALESIN: B.A., University of Michigan; M.D., Wayne State University; Clinical Instructor in Gynecology and Obstetrics
- MITCHELL SALHANEY: B.A., M.D., Wayne State University; Clinical Instructor in Internal Medicine
- MICHAEL SALIB: M.B., B.Ch., Cairo University; Clinical Instructor in Internal Medicine
- WILLIAM T. SALLEE: M.D., Jefferson Medical College; Clinical Instructor in Ophthalmology
- STEVEN O. SALLEY: B.Ch.E., D.E., University of Detroit; Instructor in Anesthesiology
- WILLIAM H. SALOT: B.A., Amherst College; M.D., Columbia University; Clinical Assistant Professor of Orthopedic Surgery
- ELI SALTZ: B.S., M.S., University of Illinois; Ph.D., State University of Iowa; Professor of Psychology
- HARRY C. SALTZSTEIN: Ph.B., Yale University; M.D., Johns Hopkins University; Clinical Professor Emeritus of Surgery
- ANTHONY T. SALVAGGIO: B.S., University of Detroit; M.D., Wayne State University; Clinical Associate Professor of Gynecology and Obstetrics
- JACQUES L. SALVAN: Licence es Lettres, Universite de Poitiers; A.M., University of Kansas; Ph.D., University of Michigan; Professor Emeritus of French
- BOHUMIL A. SAMAL: B.S., Western Michigan College; M.D., University of Chicago; Associate Professor of Oncology
- ROBERT T. SAMARAS: B.S., M.S., Ed.D., Wayne State University; Associate Professor of Health and Physical Education
- L. CARL SAMBERG: B.S., University of Detroit; M.D., Wayne State University; Clinical Instructor in Orthopedic Surgery
- MICHAEL K. SAMSON: B.A., M.D., Wayne State University; Assistant Professor of Oncology
- ROJANANDHAM SAMUDRALA: M.D., Osmania, India; Clinical Instructor in Radiology
- HERSHEL SANDBERG: B.S., M.D., Wayne State University; Clinical Assistant Professor of Internal Medicine
- PETER L. SANDERS: B.A., Wesleyan University; M.A., Middleboro College; Ph.D., Syracuse University; Professor of Education
- ALICIA C. SANDOVAL: A.A., M.D., University of Santo Tomas; Clinical Instructor in Pediatrics

GARY J. SANDS: B.A., M.U.P., Wayne State University; Ph.D., Cornell University; Assistant Professor of Urban Planning

JOHN T. SANFORD: Ph.D., Professor Emeritus of Geology

SURYANARAYANAN SANKARAN: M.B.B.S., All India Institute of Medical Sciences; Assistant Professor of Surgery

EVELIO M. SANTIAGO: M.D., Far Eastern University; Instructor in Psychiatry

ALVIN M. SAPERSTEIN: B.A., New York University; M.S., Ph.D., Yale University; Professor of Physics

VISHWANATH M. SARDESAI: B.S., M.S., Bombay University; Ph.D., Wayne State University; Associate Professor of Surgery

DOUGLAS A. SARGENT: A.B., Brown University; M.D., University of Michigan; Clinical Associate Professor of Psychiatry and Adjunct Professor of Law

ESTEBAN SARIC: M.D., National University of Buenos Aires; Instructor in Radiology

ASHOK P. SARNAIK: B.S., M.D., Bombay University; Instructor in Pediatrics

MARSHALL SHASHKIN: B.A., University of California at Los Angeles; Ph.D., University of Michigan; Associate Professor of Management

ROY O. SATHER: B.S.E.E., Wayne State University; M.S.E.E., Ph.D., University of Illinois; Associate Chairman and Professor of Electrical and Computer Engineering

STEVEN C. SAUER: B.A., University of Notre Dame; Instructor in Health and Physical Education

WILLIAM A. SAVILLE: B.S., St. Luke's College; M.S., University of Western Kentucky; Ph.D., University of Massachusetts; Assistant Professor of Physical Education and Physiology

JAMES C. SAVOY: D.V.M., Ohio State University; Adjunct Associate Professor of Comparative Medicine

JANE SAVOY: A.B., Smith College; M.S.W., New York University; Instructor in Pediatrics

L. BOYD SAVOY: B.S., Bates College; M.D., Howard University; Assistant Professor (FTA) of Dermatology and Syphilology

HADI SAWAF: P.C.B., M.D., Damascus University; Clinical Instructor in Pediatrics

KRISHNA K. SAWHNEY: B.Sc., T.N.B. College; M.B.B.S., Rajendra Medical College; Clinical Assistant Professor of Surgery

HOWARD J. SAWYER: B.A., M.D., Wayne State University; Adjunct Assistant Professor of Occupational and Environmental Health

GARY E. SCAVNICKY: B.A., M.A., Youngstown University; Ph.D., University of Illinois; Associate Professor of Spanish

A. PAUL SCHAAP: A.B., Hope College; Ph.D., Harvard University; Associate Professor of Chemistry

ROBERT M. SCHACHT: B.S., University of Wisconsin at Madison; M.A., Ph.D., University of Michigan; Assistant Professor of Anthropology

JOSEPH N. SCHAEFFER: B.A., M.D., Ohio State University; Professor of Physical Medicine and Rehabilitation

DANIEL SCHECHTER: M.D., University of Michigan; Clinical Instructor in Orthopedic Surgery

ALAN S. SCHENK: B.S., LL.B., University of Illinois; LL.M., New York University; Professor of Law

GEORGE H. SCHENK: B.S., Valparaiso University; M.S., Ph.D., Iowa State University; Professor of Chemistry

MICHAEL B. SCHERBA: B.S.E.E., Wayne State University; M.S.M.E., M.S.E.E., University of Michigan; Ph.D., Michigan State University; Professor of Electrical and Computer Engineering

ROBERT A. SCHERER: A.B., M.D., Wayne State University; Clinical Instructor in Pediatrics

ERNST SCHEYER: Ph.D., University of Freiburg; Professor Emeritus of Art History

MARVIN S. SCHINDLER: B.A., University of Massachusetts; M.A., Ph.D., Ohio State University; Chairman of Romance and Germanic Languages and Literatures and Professor of German

ROSLYN SCHINDLER: B.A., Hunter College; M.A., Ph.D., University of Pennsylvania; Assistant Professor of Urban Humanities

JAMES SCHLESS: B.A., Yale University; M.D., Long Island College of Medicine; Professor of Internal Medicine

KAY SCHLOFF: Ph.D., LL.B., University of Detroit; Adjunct Professor of Law

MARTHA E. SCHNEBLY: B.S., Towson State Teachers College; O.T. Certificate, M.A., Ed.D., Columbia University; Professor of Occupational Therapy and Deputy Dean of Faculty of Allied Health Professions

ROBERT J. SCHNECK: M.D., Harvard University; Clinical Professor of Internal Medicine

DAVID R. SCHNEIDER: B.A., University of Wichita; Ph.D., Ohio State University; Assistant Professor of Pharmacology

JOHN R. SCHNEIDER: B.S., M.D., Wayne State University; Clinical Assistant Professor of Internal Medicine

WARREN SCHNEIDER: B.S., Michigan State University; M.S., Wayne State University; D.D.S., University of Detroit Dental School; Associate Professor of Anatomy

ALYCE C. SCHNOOR: B.S., University of Detroit; M.B.A., Wayne State University; Associate Professor of Management

CLAUDE L. SCHOCHET: B.A., University of Minnesota; M.S., Ph.D., University of Chicago; Associate Professor of Mathematics

EUGENE P. SCHOENER: B.S., City College of New York; M.S., Ph.D., Rutgers University; Assistant Professor of Pharmacology

ROBERT J. SCHOENFELD: B.A., University of Michigan; M.D., Wayne State University School of Medicine; Clinical Associate Professor of Dermatology and Syphilology

KENNETH G. SCHOOFF: B.S., M.D., University of Michigan; Clinical Associate Professor of Psychiatry

CALVIN E. SCHORER: B.A., M.D., University of Wisconsin; Professor of Psychiatry

BERTRAM M. SCHREIBER: B.S., Yeshiva University, Israel; M.S., Ph.D., University of Washington; Associate Professor of Mathematics

LEONARD SCHREIER: M.D., M.S., University of Michigan; Clinical Assistant Professor of Internal Medicine

DWIGHT M. SCHROEDER: B.S., M.D., Wayne State University; Associate Professor of Family Medicine

JACK D. SCHROEDER: B.S., M.B.A., Wayne State University; Ph.D., Michigan State University; Assistant Professor of Accounting

RONALD R. SCHROEDER: B.S., University of Illinois; Ph.D., University of Wisconsin; Assistant Professor of Chemistry

SIDNEY L. SCHUCHTER: A.B., Syracuse University; M.D., Chicago Medical School; Clinical Instructor in Internal Medicine

HERBERT M. SCHUELLER: A.B., M.A., University of Minnesota; Ph.D., University of Michigan; Professor Emeritus of English

KATHERINE SCHULER: B.S., Michigan State University; M.S.N., Wayne State University; Instructor in Nursing

MONICA SCHULER: B.A., St. Mary's College; M.A., University of Wisconsin; Associate Professor of History

STEPHEN H. SCHULMAN: B.S., New York University; LL.B., Columbia University; LL.M., New York University; Professor of Law

GERALD E. SCHUMACHER: Pharm.D., M.S., University of Southern California; Ph.D., Wayne State University; Deputy Dean of The College of Pharmacy and Allied Health Professions and Associate Professor of Pharmaceutics

NASR D. SCHUNDA: M.Sc., Ohio State University; M.D., Cairo University; Clinical Instructor in Pathology

DONALD E. SCHURLKNIGHT: B.A., Duke University; M.A., Ph.D., University of Pennsylvania; Assistant Professor of Spanish

MELVIN L. SCHWARTZ: B.A., New York University; M.A., Ph.D., Northwestern University; Associate Professor of Neurology and Psychology

OSCAR D. SCHWARTZ: A.B., M.D., University of Michigan; Clinical Associate Professor of Dermatology and Syphilology

TOMA SCHWARTZ: Diploma, Sienna Chigi Academy of Music; Adjunct Assistant Professor of Music

ALFRED SCHWARZ: B.A., University of Minnesota; M.A., Ph.D., Harvard University; Professor of English

BENJAMIN SCHWIMMER: M.D., Columbia University; Clinical Associate Professor of Dermatology and Syphilology

MARRION U. SCOTT: Clinical Instructor in Pediatrics

SAMUEL F. SCOTT: B.A., Boston College; M.A., Ph.D., University of Wisconsin; Associate Professor of History

- MICHAEL SCRIVENER: B.A., State University of New York at Buffalo; M.A., State University of New York at Binghamton; Ph.D., State University of New York at Buffalo; Assistant Professor of English
- FRANKLYN SEABROOKS: B.S., Wayne State University; M.D., Meharry Medical College; Clinical Instructor in Gynecology and Obstetrics
- JAMES A. SEDENSKY: B.S., Fairfield University; Ph.D., University of Tennessee; Associate Professor of Physiology
- WALTER H. SEEGER: B.A., M.S., Ph.D., D.Sc.H.C., Wartburg College; M.D.H.C., University of Chile, Justus Liebig University; Chairman and Professor of Physiology
- ANDREW E. SEGAL: B.S., University of Michigan; M.D., Chicago Medical School; Clinical Associate Professor of Dermatology and Syphilology
- NATHAN SEGEL: B.A., M.D., University of Buffalo; M.S., University of Michigan; Clinical Associate Professor of Psychiatry
- WLADIMIR SEIDEL: A.B., Harvard University; Ph.D., University of Munich; Professor of Mathematics
- MURRAY B. SEIDLER: B.A., University of Michigan; M.A., Columbia University; Ph.D., Syracuse University; Professor of Political Science
- RONALD SELBST: M.D., University of Michigan; Clinical Assistant Professor of Psychiatry
- LAWRENCE H. SELTZER: A.B., Ph.D., University of Michigan; Professor Emeritus of Economics
- AMITAVEA SEN: B.T.E.E., Indian Institute of Technology; M.S.E.E., Ph.D., Carnegie-Mellon University; Assistant Professor of Electrical and Computer Engineering
- STEPHEN SENECOFF: B.A., New York University; M.D., State University of Leiden; Clinical Instructor in Internal Medicine
- MARY C. SENGSTOCK: Ph.B., University of Detroit; A.M., University of Michigan; Ph.D., Washington University; Associate Professor of Sociology
- CIRO SEPULVEDA: B.A., Loma Linda University; M.Div., Colgate-Rochester Divinity School; M.A., State University of New York; M.A., Ph.D., University of Notre Dame; Assistant Professor of Chicano-Boricua Studies
- ARTHUR G. SESKI: B.S., University of Detroit; M.D., University of Michigan; Assistant Professor of Gynecology and Obstetrics
- THOMAS J. SETTER: M.D., Creighton University; Clinical Instructor in Orthopedic Surgery
- GEORGE R. SEWELL, JR.: B.A., University of Michigan; M.D., Wayne State University; Clinical Instructor in Urology
- GUY W. SEWELL: B.A., University of Michigan; M.D., Hahnemann Medical College; Clinical Assistant Professor of Urology
- MARIA ELENA SEXON-PORTE: A.A., M.D., University of the Philippines; Assistant Professor of Oncology
- ROBERT V. SEYMOUR: A.B., University of California at Berkeley; Ph.D., Harvard University; J.D., University of Michigan; Adjunct Professor of Law
- ASGHAR SHAFADEH: M.D., University of Tabriz; M.S., University of Michigan; Ph.D., Wayne State University; Adjunct Assistant Professor of Physiology
- EUGENE SHAFARMAN: B.A., University of Wisconsin; M.D., University of Michigan; Clinical Instructor in Internal Medicine
- ARNOLD W. SHAFER: A.B., M.D., University of Kansas; Adjunct Professor of Medical Technology
- WAYNE J. SHAFER: B.A., San Francisco State College; Ph.D., University of California at Santa Barbara; Associate Professor of Economics
- PRADEEP R. SHAH: M.D., Medical College of Baroda; Clinical Instructor in Oncology
- PAUL SHALLER: Adjunct Associate Professor of Music
- ABUL K. SHAMSUDDIN: B.S., Rajendra College; M.D., Dacca Medical College; Assistant Professor of Oncology
- SEETHA SHANKARAN: M.D., Madras Medical College; Instructor in Pediatrics
- CAROLYN A. SHANTZ: B.A., Depauw University; M.S., Ph.D., Purdue University; Associate Professor of Psychology
- HOWARD S. SHAPIRO: B.A., University of Michigan; M.D., Wayne State University; Clinical Assistant Professor of Internal Medicine
- JAY SHAPIRO: B.A., Rider College; Ph.D., Rutgers University; Assistant Professor of Mathematics
- MARY B. SHAPIRO: B.A., Wayne State University; M.S.W., Columbia University; Associate Professor Emerita, School of Social Work
- STANLEY SHAPIRO: A.B., Brooklyn College; A.M., Ph.D., University of California at Berkeley; Assistant Professor of History
- VERN G. SHARBAUGH: B.A., Baldwin-Wallace College; M.A., Cleveland State University; Instructor in Health and Physical Education
- MABLE BURNS SHARP: B.S., Wayne State University; M.S., Ohio State University; Assistant Professor of Physical Therapy
- WILLIAM D. SHARPE: B.A., M.D., University of Western Ontario; Clinical Instructor in Family Medicine
- EDWARD SHARPLES: A.B., University of Massachusetts; Ph.D., University of Rochester; Chairman and Associate Professor of English
- JACK M. SHARTSIS: B.S., M.D., Northwestern University; Clinical Assistant Professor of Internal Medicine
- MELVIN P. SHAW: B.S., Brooklyn College; M.S., Ph.D., Case Institute of Technology; Professor of Electrical and Computer Engineering and Director of Research Institute for Engineering Sciences
- RICHARD E. SHAW: B.A., Emory University; M.A., Northwestern University; Assistant Professor of Economics
- FRANCIS P. SHEA: B.S., M.D., Wayne State University; Clinical Instructor in Radiology
- FREDERICKA SHEA: B.S., M.S., Boston University; Associate Professor of Nursing
- SHEILA SHEENAN: M.B., Dublin University; M.D., University of Sheffield; Assistant Professor of Neurology
- ANN WORKMAN SHELDON: B.A., University of Michigan; M.A., Wayne State University; Ph.D., Michigan State University; Assistant Professor of Sociology
- WARREN E. SHELDON: B.A., M.D., University of Michigan; Clinical Instructor in Pediatrics
- LEORA A. SHELEF: B.Sc., M.Sc., D.Sc., Israel Institute of Technology; Associate Professor of Family and Consumer Resources
- ROBERT S. SHEPARD: B.S., M.S., George Washington University; Ph.D., State University of Iowa; Professor of Physiology
- KEITH S. SHEPPARD: A.B., Washington University; Ph.D., Wayne State University; Assistant Professor of Communications Skills
- HERBERT D. SHERBIN: B.S., M.D., University of Michigan; Clinical Instructor in Ophthalmology
- JOHN E. SHERIDAN: B.S., University of Pittsburgh; M.B.A., Drexel University; Ph.D., Pennsylvania State University; Associate Professor of Management
- ALFRED I. SHERMAN: M.D., University of Toronto; Professor of Gynecology and Obstetrics
- MARVIN SHERMAN: B.S., Long Island University; M.D., State University of New York; Clinical Assistant Professor of Psychiatry
- FREDERICK F. SHEVIN: B.S., University of Michigan; M.D., Wayne State University; Clinical Associate Professor of Psychiatry
- NATHAN W. SHIER: B.S., M.S., Ph.D., Michigan State University; Assistant Professor of Family and Consumer Resources
- NORMA SHIFRIN: B.A., Brooklyn College; M.A., Columbia University; Ph.D., Wayne State University; Assistant Professor of Science and Technology
- DUSIK K. SHIN: M.D., Seoul National University; Clinical Instructor in Radiology
- BERNARD A. SHINKEL: B.M.E., General Motors Institute; M.S., Ph.D., Purdue University; Assistant Professor of Finance and Business Economics
- THOMAS SHOPE: B.A., State University of Iowa; M.D., Cornell University; Associate Professor of Pediatrics
- FRANCIS R. SHOR: B.A., University of Pittsburgh; M.A., Ph.D., University of Minnesota; Instructor in Urban Humanities
- JOSEPH D. SHORE: B.S., Cornell University; M.S., University of Massachusetts; Ph.D., Rutgers University; Adjunct Associate Professor of Biochemistry

CLAYTON M. SHORS: B.S., M.D., University of Nebraska; Clinical Assistant Professor of Internal Medicine

LARRY K. SHOUP: B.S. (Pharmacy), Ohio Northern University; M.S., Ohio State University; Adjunct Associate Professor of Hospital Pharmacy

ARTHUR SHUFRO: B.S., M.D., University of Michigan; Clinical Instructor in Radiology

KAMAL SHUKLA: B.Comm., M.A., Agra University; M.A., Lucknow University; M.A., Ph.D., Wayne State University; Assistant Professor of Urban Humanities

CHARLES W. SHULL: B.A., Ohio Wesleyan University; M.A., Ph.D., Ohio State University; Professor Emeritus of Political Science

GARY M. SHULMAN: B.A., Lehman College; M.A., Ph.D., Purdue University; Instructor in Speech

HERSCHEL SHULMAN: B.S., University of Toledo; M.D., University of Louisville; Clinical Instructor in Internal Medicine

EDWARD J. SHUMAKER: B.S., University of Chicago; M.D., University of Michigan; Clinical Associate Professor of Urology

SAMUEL I. SHUMAN: B.A., M.A., Ph.D., University of Pennsylvania; J.D., University of Michigan; S.J.D., Harvard University; Professor of Law and Clinical Professor of Law in Psychiatry

JOSEPH W. SHURMUR: B.A., Albion College; M.D., University of Michigan; Clinical Instructor in Orthopedic Surgery

TARIQ SIDDIQUI: M.B.B.S., Dow Medical College; Instructor in Internal Medicine

MAUREEN A. SIE: B.A., Marycrest College; M.S., Ph.D., Iowa State University; Associate Professor of Education

WILLIAM E. SIEBERT: A.B., Albion College; M.D., Wayne State University; Clinical Assistant Professor of Orthopedic Surgery

ALBERT SIEGEL: B.A., Cornell University; Ph.D., California Institute of Technology; Professor of Biology

MARVIN D. SIEGEL: M.D., University of Michigan; Clinical Assistant Professor of Dermatology and Syphilology

LORRAINE A. SIEVERS: M.S., M.D., Marquette University; Clinical Instructor in Gynecology and Obstetrics

VIRGINIA SIEWERT: B.S.N., University of Portland; M.S.N., University of Oregon; Assistant Professor of Nursing

HORIS SILBERBERG: B.A., M.D., Wayne State University; Clinical Assistant Professor of Pathology

ALLEN SILBERGLEIT: B.A., M.A., University of Massachusetts; M.D., University of Cincinnati; Ph.D., Wayne State University; Adjunct Associate Professor of Physiology

RICHARD SILLS: B.S., M.D., Wayne State University; Clinical Assistant Professor of Internal Medicine

WILLIAM SILLS: B.A., M.D., Wayne State University; Clinical Instructor in Internal Medicine

YVAN J. SILVA: M.B.B.S., Bombay University; Associate Professor of Surgery

DONALD SILVER: B.A., M.A., M.D., University of Michigan; Assistant Professor of Psychiatry

HERBERT SILVERMAN: B.S., Wayne State University; M.A., Ph.D., University of Michigan; Adjunct Associate Professor of Psychology

LAWRENCE SILVERMAN: B.F.A., M.A., Wayne State University; Ph.D., Ohio State University; Associate Professor of Speech

G. HAROLD SILVIUS: Ed.D., Professor Emeritus of Education

RICHARD SIMMONS, JR.: B.A., Detroit Institute of Technology; M.S.W., Wayne State University; Associate Professor, School of Social Work

EVERETT B. SIMMONS, JR.: B.A., Rutgers University; M.D., Meharry Medical College; Clinical Instructor in Dermatology and Syphilology

J. EDWARD SIMPKINS: B.A., M.Ed., Wayne State University; Ed.D., Harvard University; Dean of the College of Education and Professor of Education

JOHN W. SIMPSON, JR.: B.A., J.D., University of Michigan; Adjunct Professor of Law

WILLIAM L. SIMPSON: B.S., Ph.D., M.D., University of Chicago; Professor of Oncology

CLYDE B. SIMSON: M.D., University of Buffalo; Associate Professor of Psychiatry

ROBERT SINCLAIR: B.A., Wayne State University; M.A., Ph.D., Northwestern University; Professor of Geography

AMNAUY SINGAKOWINTA: M.D., Siriraj Hospital and Medical School; Associate Professor of Oncology

STANFORD A. SINGER: M.D., Wayne State University; Clinical Instructor in Pediatrics

TRILOCHAN SINGH: B.S., Punjab University; M.S., Ph.D., University of California; Associate Professor of Mechanical Engineering

BAGESHWARI P. SINHA: M.B.B.S., M.S., Patna University; Clinical Assistant Professor of Urology

ORLANDO SISON: M.S., M.D., University of Santo Tomas; Associate Professor of Anesthesiology

ERNEST B. SKAGGS: A.B., M.S., Ph.D., University of Michigan; Professor Emeritus of Psychology

DOROTHY SKINNER: B.S., M.A., Wayne State University; Chairman and Assistant Professor of Medical Technology

ELIZABETH S. SKLAR: B.A., Swarthmore College; M.A., Ph.D., University of Pennsylvania; Assistant Professor of English

MANUEL SKLAR: B.A., M.D., Wayne State University; Clinical Assistant Professor of Internal Medicine

JOSEPH SKRZYNSKI: B.M., University of Michigan; Adjunct Assistant Professor of Music

HAROLD T. SLABY: B.A., M.A., Wayne State University; Ph.D., University of Wisconsin; Associate Professor of Mathematics

DORIS SLATER-STEWART: B.S.N., M.S.N., Wayne State University; Associate Professor of Nursing

JUDITH M. SLINING: B.S. (Pharmacy), Ferris State College; M.S., Wayne State University; Assistant Professor of Clinical Pharmacy

WILLIAM W. SLOAN: B.A., San Fernando Valley State College; M.A., University of Maryland; Assistant Professor of Health and Physical Education

RALPH SLOVENKO: B.E., LL.B., M.A., Ph.D., Tulane University; Professor of Law

THOMAS L. SLOVIS: B.A., Hobart College; M.D., University of Pennsylvania; Clinical Assistant Professor of Radiology

JOSEPH SLUSKY: B.S., M.D., Wayne State University; Clinical Associate Professor of Psychiatry

MELVIN SMALL: B.A., Dartmouth College; M.A., Ph.D., University of Michigan; Professor of History

JUDLY L. SMARR: B.S., University of Maine at Gorham; M.A.T., Oakland University; Ph.D., Wayne State University; Instructor in Education

HOMER M. SMATHERS: B.S., B.M., M.D., Northwestern University; Clinical Associate Professor of Surgery

WARD M. SMATHERS: B.S., Michigan State University; B.M., M.D., Northwestern University; Clinical Instructor in Surgery

KATHLEEN L. SMILER: D.V.M., Michigan State University; Adjunct Associate Professor of Comparative Medicine

ANDREW J. SMITH: B.S., University of Detroit; M.D., Howard University; Clinical Assistant Professor of Internal Medicine

CAROL O. SMITH: Ed.B., Southern Illinois University; M.A., Ph.D., State University of Iowa; Professor Emeritus of Political Science

DANIEL O. SMITH: B.S., Bluffton College; M.A., Ph.D., Michigan State University; Assistant Professor of Health Education

DONALD B. SMITH: D.D.S., Marquette University; Assistant Professor of Surgery

E. BROOKS SMITH: B.A., M.A.T., Harvard University; Ed.D., Columbia University; Professor of Education

E. BURROWS SMITH: A.B., Swarthmore College; M.A., Ph.D., Brown University; Associate Provost for Academic Administration and Professor of French

EUGENE P. SMITH: B.S., M.A., Ph.D., Ohio State University; Professor of Education

G. ALDEN SMITH: B.F.A., M.F.A., Art Institute of Chicago; Chairman and Professor of Art and Art History

GARY R. SMITH: B.A., Cornell College; M.Ed., National College of Education; Ph.D., Northwestern University; Professor of Education

GOLDWIN SMITH: B.A., University of Western Ontario; M.A., University of Toronto; Ph.D., Cornell University; Professor of History

GORDON SMITH: B.S., M.S., Wayne State University; Adjunct Assistant Professor of Music

- HARTFORD SMITH: B.A., M.S.W., Wayne State University; Assistant Professor, School of Social Work
- KENNETH SMITH: B.Sc., Ph.D., University College, London; Adjunct Professor of Engineering
- LAURA A. SMITH: B.S., M.A., Wayne State University; Instructor in Education
- MARK H. SMITH, JR.: B.S., M.A., Wayne State University; Ph.D., Ohio State University; Assistant Dean and Professor of Education
- RICHARD H. SMITH: B.S., Morehouse College; M.D., Meharry Medical College; Clinical Assistant Professor of Dermatology and Syphilology
- ROBERT E. SMITH: B.A., Arizona State University; Pharm.D., University of Southern California; Associate Professor of Clinical Pharmacy and Coordinator of Clinical Education and Research Programs
- RUSSELL EDWIN SMITH: B.A., M.A., Wayne State University; Associate Professor of Speech
- RUSSELL EVERETT SMITH: B.A., Wayne State University; M.A., University of Michigan; Associate Professor Emeritus of English
- SUSAN J. SMITH: A.B., University of Detroit, Wayne State University; Instructor in Anesthesia
- GENEVA SMITHERMAN: B.A., M.A., Wayne State University; Ph.D., University of Michigan; Associate Professor of Speech
- W. RAY SMITTLE: Ph.D., Professor Emeritus of Education
- SUE M. SMOCK: B.A., M.A., Wayne State University; Adjunct Faculty in Urban Planning
- DAVID J. SMYTH: B. of Economics, Masters of Economics, University of Queensland; Ph.D., University of Birmingham; Chairman and Professor of Economics
- EUGENE A. SNIDER: B.A., Adelbert College; M.D., Ohio State University; Clinical Instructor in Gynecology and Obstetrics
- LAWRENCE K. SNIDER: B.A., J.D., University of Michigan; Adjunct Professor of Law
- ALLEN R. SOBLE: B.S., M.D., Wayne State University; Clinical Instructor in Internal Medicine
- YOUNG HO SOHN: M.D., Yonsei University; Instructor in Internal Medicine
- GARY F. SOLDOW: B.A., M.A., Ph.D., University of Minnesota; Assistant Professor of Marketing
- CHARLES M. SOLLEY: B.A., Centenary College; M.S., Tulane University; Ph.D., University of Illinois; Professor of Psychology
- ABRAHAM B. SOLOMON: B.S., M.D., Wayne State University; Clinical Instructor in Family Medicine
- GLORIA J. SOLUK: B.S., Wayne State University; M.S., University of Michigan; Assistant Professor of Health and Physical Education
- STANLEY D. SOLVICK: A.B., M.A., Ph.D., University of Michigan; Associate Professor of History
- ANTAL SOLYOM: Ph.D., University of Oklahoma; M.D., Medical University of Szeged; Clinical Assistant Professor of Psychiatry
- FRANK SOMOGYI: B.S.C.E., M.S.C.E., Wayne State University; Ph.D., University of Michigan; Assistant Professor of Civil Engineering
- ROBERT A. SONGE: B.S., M.D., University of Wisconsin; Clinical Assistant Professor of Radiology
- JAMES SONNEGA: B.A., M.A., M.D., University of Michigan; Clinical Assistant Professor of Psychiatry
- FREDDY R. SOSA: B.S., Liceo Secundario; M.D., University of Santo Domingo; Clinical Instructor in Internal Medicine
- ALLEN SOSIN: B.S., M.D., University of Michigan; Clinical Assistant Professor of Pediatrics
- WILLIAM P. SOSNOWSKY: B.S., M.A., Ed.D., Wayne State University; Associate Professor of Education
- JOHN W. SPALDING: B.A., Northwestern University; A.M., Ph.D., University of Michigan; Associate Professor of Speech
- RICHARD D. SPEAR: B.A., University of Minnesota; M.A., Wayne State University; Professor of Speech
- RICHARD M. SPECTOR: B.A., Harvard University; Ph.D., Oxford University; Associate Professor of Physics
- STEVEN SPECTOR: B.A., M.Ed., Ph.D., Wayne State University; Assistant Professor (FTA) of Pediatrics
- JUSTINE SPEER: B.S., M.S., Ph.D., University of Minnesota; Associate Professor of Nursing
- MAVIS SPENCER: B.A., University of Detroit; M.S.W., Wayne State University; Associate Professor, School of Social Work
- MILTON H. SPENCER: B.S., M.A., New York University; Ph.D., Cornell University; Chairman and Professor of Finance and Business Economics
- DONALD SPINELLI: B.A., M.A., State University of New York at Buffalo; Ph.D., Ohio State University; Assistant Professor of French
- WERNER U. SPITZ: M.D., Hadassah Medical School; Clinical Associate Professor of Pathology
- KURT SPITZER: B.A., M.S.W., Wayne State University; Professor, School of Social Work
- HOWARD H. SPLETE, JR.: B.A., St. Lawrence University; M.A., Syracuse University; Ph.D., Michigan State University; Professor of Education
- PAUL SPORN: B.A., New York University; Ph.D., State University of New York at Buffalo; Associate Professor of English
- MARY SPRIK: B.S.N., M.S.N., Wayne State University; Assistant Professor of Nursing
- SARGUR N. SRIHARI: B.S., Bangalore University; B.S.E.E., Indian Institute of Science; M.S., Ph.D., Ohio State University; Assistant Professor of Mathematics
- RONALD J. SRODAWA: B.S., University of Detroit; M.S., Ph.D., University of Michigan; Assistant Professor of Mathematics
- ROSS STAGNER: B.A., Washington University; M.A., Ph.D., University of Wisconsin; Professor of Psychology
- ALBERT F. STAHL: B.S., State University of New York at Buffalo; M.S., Ed.D., Syracuse University; Associate Professor of Education
- MARY S. STAHLY: B.A., University of Alabama; M.D., Western Reserve School of Medicine; Instructor in Psychiatry
- JEAN STALLWOOD-HESS: B.S.N., Indiana University; M.S.N., Wayne State University; Associate Professor of Nursing
- SUSAN STANFORD: B.A., Loyola College; M.Ed., Boston College; Ph.D., Northwestern University; Assistant Professor of Education
- JEAN A. STANICEK: B.A., Oberlin College; M.A., State University of Iowa; Associate Professor of Health and Physical Education
- M. BURNS STANLEY: B.A., Lincoln Memorial University; M.A., Emory University; LL.B., Harvard University; Adjunct Professor of Law
- MIRON STANO: B. Commerce, McGill University; M.A., Ph.D., Cornell University; Assistant Professor of Economics
- RENATO G. STARICCO: M.D., University of Genova Medical School, Italy; Clinical Associate Professor of Dermatology and Syphilology
- MARVIN L. STARMAN: B.A., M.D., University of Michigan; Clinical Assistant Professor of Psychiatry
- IVAN STARR: B.A., Queens College; M.A., Ph.D., Yale University; Assistant Professor of Near East and Asian Studies
- RAYMOND H. STARR: B.A., Johns Hopkins University; M.A., Denver University; Ph.D., University of Cincinnati; Adjunct Associate Professor of Psychology
- WALTER J. STASINSKI: B.S., Wayne State University; Instructor in Health and Physical Education
- LOUIS W. STAUDT: B.A., M.D., University of Michigan; Adjunct Assistant Professor of Occupational and Environmental Health
- ARLENE E. STEARNS: A.B., Bowling Green State University; Instructor in Ophthalmology
- MARTIN STEARNS: B.A., M.A., University of California; Ph.D., Cornell University; Dean of the College of Liberal Arts and Professor of Physics
- MARTIN C. STEELE: B.S., Cooper Union; M.S., Ph.D., University of Maryland; Adjunct Professor of Electrical and Computer Engineering
- ROBERT D. STEELE: M.D., University of Michigan; Clinical Instructor in Radiology
- C. DONALD STEEPE: M.D., University of Western Ontario; Clinical Instructor in Pediatrics
- ANDREW E. STEFANI: M.D., Wayne State University; Clinical Instructor in Surgery
- RICHARD W. STEGER: B.A., Ph.D., University of Wyoming; Instructor in Gynecology and Obstetrics

ZWI STEIGER: M.D., Charles University, Prague;
Associate Professor of Surgery

HARVEY S. STEIN: B.S., M.D., University of Michigan;
Clinical Instructor in Pediatrics

TALBERT S. STEIN: B.S., Wayne State University; M.A., Ph.D.,
Brandeis University; Associate Professor of Physics

ALBERT L. STEINBACH: B.A., B.S., University of North
Dakota; M.D., University of Illinois; Clinical Instructor
in Internal Medicine

EUGENE STEINBERGER: B.S., M.D., Wayne State University;
Clinical Instructor in Internal Medicine

S. DANIEL STEINER: B.S., West Virginia University; M.D.,
Northwestern University; Adjunct Associate Professor of
Occupational and Environmental Health

CHARLES R. STERLING: Ph.D., Wayne State University;
Assistant Professor of Comparative Medicine

ALFRED STERN: B.A., M.A., New York University;
Professor of Natural Science and Humanistic Studies

JOSEPH STERN: B.A., University of Michigan; M.D., Wayne
State University; Clinical Instructor in Gynecology
and Obstetrics

LOUIS L. STERN: B.S., Marquette University; M.B.A., Ph.D.,
Northwestern University; Chairman and Associate
Professor of Marketing

MYLES STERN: B.A., M.B.A., University of Michigan; Ph.D.,
Michigan State University; Assistant Professor of Accounting

SHELDON D. STERN: B.S., M.D., Indiana University;
Clinical Assistant Professor of Ophthalmology

MARGARET STERNE: A.M., Wayne State University; Ph.D.,
University of Michigan; Professor Emeritus of History

WILLIAM E. STESLICHE: B.A., Wayne State University;
M.A., Ph.D., University of Michigan; Associate Professor
of Community Medicine

LAURENCE J. STETTNER: B.A., M.A., Brooklyn College;
Ph.D., Stanford University; Professor of Psychology

CALVIN L. STEVENS: B.S., University of Illinois; Ph.D.,
University of Wisconsin; Professor of Chemistry

FLUMO Y. STEVENS: B.S., Cuttington College; M.B.A.,
Syracuse University; Ph.D., University of Nebraska;
Assistant Professor of Accounting

LEE B. STEVENSON: M.D., University of Illinois;
Clinical Associate Professor of Gynecology and Obstetrics

DANIEL M. STEWART: B.S., Wayne State University; D.O.,
Kansas City College of Osteopathic Medicine;
Clinical Instructor in Dermatology and Syphilology

MELBOURNE G. STEWART: A.B., M.S., Ph.D., University of
Michigan; Associate Provost for Faculty Relations and
Professor of Physics

HUGH W. STILLLEY: B.A., University of California; M.A.,
University of British Columbia; Ph.D., Michigan State
University; Assistant Professor of Social Science

KARL STILLWATER: B.S., Wayne State University; M.D.,
Indiana University; Clinical Instructor in Pediatrics

GAIL C. STINE: B.A., Mount Holyoke; M.A., Ph.D., Harvard
University; Associate Professor of Philosophy

PETER J. STINE: B.A., Amherst College; M.A., University of
Michigan; Ph.D., University of California at Berkeley;
Assistant Professor of English

WILLIAM D. STINE: A.B., Haverford College; M.A., Ph.D.,
Harvard University; Associate Professor of Philosophy

THOMAS B. STOCK: M.D., Loyola University;
Clinical Assistant Professor of Internal Medicine

DONALD V. STOCKER: B.S.E.E., Wayne State University;
M.S.E.E., University of Michigan; Associate Professor
of Engineering Technology

HAROLD S. STOCKER: D.D.S., University of Detroit; M.A.,
Wayne State University; Adjunct Assistant Professor of Speech

LAWRENCE L. STOCKER: M.D., Wayne State University;
Clinical Associate Professor of Ophthalmology

SHELDON S. STOFFER: M.D., Wayne State University;
Clinical Assistant Professor of Internal Medicine

JOHN M. STONE: B.A., M.D., Wayne State University;
Clinical Assistant Professor of Internal Medicine

JULIUS STONE: B.A., B.S., University of Minnesota; B.M.,
M.D., University of Minnesota Medical School;
Clinical Assistant Professor of Dermatology and Syphilology

SAMUEL B. STONE: B.A., M.A., University of Utah; M.A.,
Ph.D., University of California; Professor of Education

SIDNEY L. STONE: B.S., M.D., Wayne State University;
Clinical Assistant Professor of Ophthalmology

RALPH D. STORY: B.F.A., M.A., Ohio University;
Instructor in English

MILTON E. STRAUSS: B.S., City College of New York; A.M.,
Ph.D., Harvard University; Adjunct Associate Professor
of Psychology

LEON STREBEL: B.A., M.D., University of Basel;
Assistant Professor of Pediatrics

RICHARD STRICHARTZ: B.S.E.E., University of South
Carolina; M.A., Columbia University; J.D., University of
Miami; LL.M., New York University; Professor of Law

GERALD STRONSKI: B.S., Wayne State University; M.D.,
George Washington University; Clinical Instructor in
Internal Medicine

JAMES D. STROUD: B.S., Ball State University; M.D., Indiana
University School of Medicine; Clinical Assistant Professor
of Dermatology and Syphilology

ROBERT M. STROZIER II: B.M.E., Georgia Institute of
Technology; M.A., Ph.D., University of Chicago;
Assistant Professor of English

JOAN C. STRYKER: B.S., M.D., University of Illinois;
Associate Professor of Gynecology and Obstetrics

WALTER A. STRYKER: A.B., University of Michigan; M.D.,
Ph.D., University of Chicago; Clinical Associate
Professor of Pathology

RICHARD P. STUDING: B.A., M.A., Ph.D., Wayne State
University; Assistant Professor of Humanities

FERN STURGIS: B.S.N., M.S.N., Wayne State University;
Assistant Professor of Nursing

STEPHEN W. STURMAN: B.A., University of Michigan; M.D.,
Wayne State University; Clinical Instructor in
Dermatology and Syphilology

STANLEY K. STYNES: B.S., M.S., Wayne State University;
Ph.D., Purdue University; Dean of the College of
Engineering and Professor of Chemical Engineering

MAYER SUBRIN: B.A., M.D., Wayne State University;
Clinical Assistant Professor of Psychiatry

HELEN T. SUCHARA: B.A., M.A., Wayne State University;
Ed.D., Teachers College, Columbia University;
Professor of Education

LEONARD B. SUDAKIN: B.A., Wayne State University; M.D.,
University of Michigan; Clinical Instructor in
Gynecology and Obstetrics

H. SAUL SUGAR: A.B., M.D., University of Michigan;
Clinical Professor of Ophthalmology

MARCUS SUGARMAN: A.B., M.D., Wayne State University;
Clinical Assistant Professor of Internal Medicine

CHOICHI SUGAWA: M.D., Ph.D., University of Tokyo;
Associate Professor of Surgery

CATHERINE F. SULLIVAN: B.S., Shaw University; M.A.,
Wayne State University; Assistant Professor of Family
and Consumer Resources

JOHN C. SULLIVAN: Ph.D., Professor Emeritus of Education

PAUL W. SULLIVAN: B.A., University of Michigan; M.A.,
Ph.D., Wayne State University; Associate Professor
of Education

THOMAS M. SULLIVAN: B.S., University of Detroit; M.D.,
M.S., Wayne State University; Associate Professor
of Psychiatry

TZE-CHIEN SUN: B.S., National Taiwan University; Ph.D.,
Brown University; Associate Professor of Mathematics

ROY S. SUNDICK: B.A., State University of New York at
Binghamton; M.A., Ph.D., State University of New York at
Buffalo; Assistant Professor of Immunology and Microbiology

KOMOL SURAKOMOL: M.D., Chulalongkorn University;
Clinical Instructor in Internal Medicine

ROBERT H. SWANBORG: B.S., Wagner College; M.S., Long
Island University; Ph.D., State University of New York at
Buffalo; Associate Professor of Immunology and Microbiology

CURTIS J. SWANSON: B.S., North Park College; M.S.,
Northern Illinois University; Ph.D., University of Illinois;
Associate Professor of Biology

ERIC R. SWANSON: B.S., Western Michigan University; M.A.,
Ph.D., University of Texas; Assistant Professor of Geology

JON C. SWANSON: B.A., M.A., University of Iowa;
Instructor in Social Science

- LARRY N. SWANSON: Pharm.D., University of Southern California; Associate Professor of Clinical Pharmacy, Assistant Dean of the College of Pharmacy and Allied Health Professions and Student Affairs
- RICHARD A. SWANSON: B.S., M.E., Wayne State University; Ph.D., Ohio State University; Assistant Director and Associate Professor of Health and Physical Education
- DARWIN SWARTZ: B.A., M.A., Wayne State University; M.M., University of Michigan; Adjunct Assistant Professor of Music
- ROBERT D. SWARTZ: A.B., Columbia College; B.S., M.A., Columbia University; Ph.D., Northwestern University; Associate Professor of Geography
- FRANK N. SYNER: B.S., University of Massachusetts; Ph.D., Wayne State University; Associate Professor of Gynecology and Obstetrics
- RODMAN F. TABER: B.S., M.D., State University of Iowa; Clinical Associate Professor of Surgery
- MOHAMMED TAHER: M.B., Ch.B., Baghdad University; Assistant Professor of Internal Medicine
- EDWARD TALLANT: B.S., St. Joseph College of Philadelphia; M.D., Jefferson Medical College; Clinical Assistant Professor of Internal Medicine
- FREDERICK TALMERS: M.D., Boston University; M.S., Wayne State University; Associate Professor of Internal Medicine
- JAMES TAMBURINI: Diploma, Curtis Institute of Music; Adjunct Assistant Professor of Music
- ANTOINETTE TANAY: M.D., Ludwig-Maximilian University; Clinical Assistant Professor of Dermatology and Syphilology
- EMANUEL TANAY: M.D., University of Munich; Clinical Associate Professor of Psychiatry
- NATALIA M. CAIN TANNER: M.D., Meharry Medical College; Clinical Associate Professor of Pediatrics
- JORGE I. TAPIA-VIDELA: B.A., University of Chile; Ph.D., University of Texas at Austin; Associate Professor of Political Science
- DICK A. TARPINIAN: B.S., Wayne State University; M.D., University of Michigan; Clinical Instructor in Internal Medicine
- MAURICE TATELMAN: B.A., M.D., University of Nebraska; Clinical Professor of Radiology
- AMOS TAYLOR III: B.A., University of Michigan; M.D., Harvard University; Clinical Instructor in Family Medicine
- ELIZABETH TAYLOR: B.S., Mercy College; M.S., Russell Sage College; Instructor in Nursing
- JOHN D. TAYLOR: B.S., Ph.D., University of Arizona; Chairman and Professor of Biology and Associate Professor of Comparative Medicine
- LARRY C. TAYLOR: B.A., Morehouse College; M.A., Ph.D., Wayne State University; Assistant Professor of Political Science
- MILES TAYLOR: M.B., Ch.B., Sheffield University; Clinical Assistant Professor of Otolaryngology
- NELSON TAYLOR: A.B., M.B., M.D., Wayne State University; Clinical Professor of Internal Medicine
- STEVEN M. TAYLOR: B.A., M.A., Ph.D., Wayne State University; Instructor in French
- TCHE T. TCHEN: B.S., Aurora College; Ph.D., University of Chicago; Professor of Chemistry
- JOHN E. TEAHAN: B.A., Assumption College; M.A., University of Western Ontario; Ph.D., Michigan State University; Professor of Psychology
- † MYER TEITELBAUM: A.B., M.D., University of Michigan; Clinical Assistant Professor of Internal Medicine
- THOMAS A. TENAGLIA: B.S., University of Detroit; M.D., Wayne State University; Clinical Instructor in Family Medicine
- CAROL TENEROWICZ: B.S.N., Mercy College; M.S.N., Wayne State University; Assistant Professor of Nursing
- LEONARD W. TENNENHOUSE: B.A., Wayne State University; Ph.D., University of Rochester; Assistant Professor of English
- JOHN W. TENNY: Ed.D., Professor Emeritus of Education
- ROSARIO R. TEODORO: B.S., University of the Philippines; M.S., Ph.D., University of Michigan; Associate Professor of Biology
- JOHN Y. TESHIMA: B.A., M.D., University of California; Associate Professor of Gynecology and Obstetrics
- ROBERT T. TESKE: B.A., Harvard College; Ph.D., University of Pennsylvania; Assistant Professor of English
- ROGER J. THIBERT: B.A., Assumption College; M.S., University of Detroit; Ph.D., Wayne State University; Professor of Pathology
- ALEJANDRO B. THIERMANN: D.V.M., University of Santiago; Instructor in Comparative Medicine
- M. C. THIRUMOORTHY: M.B.B.S., Stanley Medical College; Instructor in Pediatrics
- ANTHONY J. THOMAS, JR.: B.S., Xavier University; M.D., University of Cincinnati; Instructor in Urology
- CLAIR G. THOMAS: B.S., University of California at Los Angeles, Children's Hospital, School of Physical Therapy; Adjunct Instructor in Physical Therapy
- JAMES A. THOMAS: B.S., M.S., M.D., Ohio State University; Assistant Professor of Pharmacology
- JOEL J. THOMAS: B.A., Grinnell College; M.A., University of Chicago; Ph.D., University of Iowa; Assistant Professor of English
- L. MURRAY THOMAS: B.A., M.D., Wayne State University; Associate Dean of the School of Medicine and Chairman and Professor of Neurosurgery
- LEON D. THOMAS: A.B., Fisk University; M.D., Howard University; Clinical Assistant Professor of Internal Medicine
- ROBERT K. THOMAS: A.B., A.M., University of Arizona; Professor of Social Science
- ROBERT L. THOMAS: A.B., Bowdoin College; Ph.D., Brown University; Professor of Physics
- SAMUEL H. THOMAS, JR.: A.B., Lafayette College; LL.B., Harvard University; Adjunct Professor of Law
- ARTHUR L. THOMPSON: M.D., Meharry Medical College; Clinical Associate Professor of Pediatrics
- BRYAN THOMPSON: B.A., University of Toronto; M.A., Ph.D., Clark University; Associate Professor of Geography
- LARRY G. THOMPSON: M.D., University of Michigan; Clinical Instructor in Family Medicine
- WILBUR R. THOMPSON: B.A., Wayne State University; M.A., Ph.D., University of Michigan; Professor of Economics
- WILLIAM L. THOMPSON: B.A., M.A., University of Texas; Ph.D., University of California; Professor of Biology
- J. ALEX L. THOMSON: B.A. Sc., University of British Columbia; Ph.D., California Institute of Technology; Adjunct Professor of Engineering
- RICHARD J. THORDESON: B.S., M.S., University of Utah; Ph.D., Illinois State University; Adjunct Associate Professor of Education; Director of Admissions and Registrar
- JOSEPH E. THORNHILL: M.D., Meharry Medical College; Clinical Associate Professor of Radiology
- ROBERT B. THORNHILL: B.S.M.E., M.S.M.E., Wayne State University; Acting Director of the Division of Engineering Technology and Associate Professor of Engineering Technology
- GEORGE C. THOSTESON: A.B., M.D., Wayne State University; Clinical Associate Professor of Internal Medicine
- ROBERT R. THRELKELD: M.D., Wayne State University; Clinical Assistant Professor of Surgery
- VERN F. THUDIUM: B.S. (Pharmacy), M.S., University of Iowa; Adjunct Associate Professor of Hospital Pharmacy
- ROBERT C. THUMANN: B.A., M.D., Ohio State University; Clinical Assistant Professor of Urology
- JASON H. TICKTON: B.A., M.A., Wayne State University; Professor of Music
- EILEEN TTEDT: B.S.N., Marquette University; M.S.N., Wayne State University; Associate Professor of Nursing
- KEVIN H. TIERNEY: B.A., M.A., LL.B., Cambridge University; LL.M., Yale University; Professor of Law
- TYRONE TILLERY: B.S., M.A., University of Cincinnati; Instructor in History
- JACQUELINE THILES: B.S., M.Ed., Wayne State University; Ph.D., University of Michigan; Associate Professor of Education
- WILLIAM E. TIMBERLAKE: B.S., M.S., Ph.D., State University of New York; Assistant Professor of Biology
- GERALD C. TIMMIS: M.D., Wayne State University; Clinical Assistant Professor of Pediatrics
- HILARY H. TIMMIS: B.S., University of Detroit; M.D., Wayne State University; Clinical Associate Professor of Surgery

† Deceased

SIK WOO TING: A.B., Earlham College; M.S., M.D., University of Michigan; Associate Professor of Anesthesiology

DENNIS J. TINI: B.M., M.M., Wayne State University; Adjunct Assistant Professor of Music

JAMES B. TINTERA: B.S., M.A., Northwestern University; Ed.D., Michigan State University; Professor of Speech

JUDITH E. TINTINALLI: B.S., University of Detroit; M.D., Wayne State University; Assistant Professor of Surgery

ROBERT J. TITIEV: A.B., Harvard College; M.S., Ph.D., Stanford University; Assistant Professor of Philosophy

DENNIS F. TODD: B.A., University of California at Riverside; M.A., Johns Hopkins University; Ph.D., Emory University; Assistant Professor of English

RUTH W. TODD: B.A., University of Iowa; M.A., Wayne State University; Ph.D., University of Colorado; Assistant Professor of Greek and Latin

THERIAULT J. TODD: B.A., University of California at Riverside; M.A., Ph.D., Emory University; Adjunct Assistant Professor of Psychology

THEODORE TODOROFF: M.D., University of Michigan; Clinical Instructor in Internal Medicine

NICHOLAS TOMASULO: B.S., College of the City of New York; LL.B., Columbia University; Adjunct Professor of Law

AUGUSTIN TORRES: B.S., Universidad Autonoma Edo de Hidalgo; M.D., University of Mexico; Instructor in Pathology

MARIA TORRES: B.A., University of Puerto Rico; M.A., University of Michigan; Assistant Professor of Chicano-Boricua Studies

LAWRENCE P. TOURKOW: B.A., M.D., Ohio State University; Associate Professor of Gynecology and Obstetrics and Associate Professor of Psychiatry

GARFIELD TOURNEY: B.S., M.D., University of Illinois; M.S., State University of Iowa; Professor of Psychiatry

MERLIN C. TOWNLEY: A.B., M.D., University of Michigan; Clinical Instructor in Psychiatry

PHILIP J. TRACI: B.A., Western Reserve University; M.A., Ph.D., Duke University; Associate Professor of English

EDWARD G. TRACY: B.S., Ph.D., Wayne State University; Assistant Professor of Anatomy

LIBORIO TRANCHIDA: M.D., University of Rome; Associate Professor of Internal Medicine

RICHARD E. TRESSEL: B.A., Baldwin-Wallace College; Instructor in Health and Physical Education

HANS-GEORG TRIESCHMAN: Ph.D., University of Kiel; Adjunct Professor of Chemical and Metallurgical Engineering

TRAVIS E. TRITTSCHUEH: B.S., M.A., Ph.D., Ohio State University; Associate Professor of English

DAN TRIVICH: B.A., Ph.D., Ohio State University; Professor of Chemistry

MARTIN B. TROTSKY: B.S., M.D., Wayne State University; Clinical Assistant Professor of Otolaryngology

C. EMERY TROXEL: B.A., University of Iowa; M.B.A., Northwestern University; Ph.D., University of Iowa; Professor Emeritus of Economics

NESTOR TRUCCONE: M.D., National University of Cordoba; Assistant Professor (FTA) of Pediatrics

RONALD E. TRUNSKY: B.S., M.D., University of Michigan; Associate Professor of Psychiatry

CHIA-KUEI TSAO: B. of Laws, Catholic University, Peiping; M.A., Ph.D., University of Oregon; Professor of Mathematics

NAI-KUAN TSAO: B.S.E.F., National Taiwan University; M.S., Ph.D., University of Hawaii; Assistant Professor of Mathematics

DEMETRIUS TSEKNOGLOU: B.Sc., University College, London; M.Sc., Dalhousie University; M.S., Ph.D., Yale University; Associate Professor of Biochemistry

STEPHEN H. TUDOR: B.A., Trinity College; M.A., University of Iowa; M.F.A., University of Oregon; Associate Professor of English

FLOYD S. TUKEK: B.S., Wayne State University; M.D., University of Michigan; Clinical Assistant Professor of Ophthalmology

JOHN A. TULLOCH: B.A., Wayne State University; M.D., University of Michigan; Clinical Assistant Professor of Gynecology and Obstetrics

OSCAR C. TUMACDER: A.B., M.D., University of the Philippines; Clinical Instructor in Surgery

CECELIA N. TURCZYNSKI: B.S. (Pharmacy), Wayne State University; Instructor Emerita in Pharmaceutics

RONALD TURNBULL: B.S. (Pharmacy), Philadelphia College of Pharmacy and Science; M.S., University of Tennessee; Adjunct Associate Professor of Hospital Pharmacy

RACHEL TURNER: M.R.C.S., L.R.C.P., University of London; Clinical Assistant Professor of Internal Medicine

WILLIAM H. TURNER: B.A., Cornell University; M.S.W., Wayne State University; Associate Professor, School of Social Work

NOLA H. TUTAG: B.A., M.A., Ed.D., Wayne State University; Associate Professor of Humanities

BEVERLY TYLER: B.S.N., Wayne State University; M.S., Boston University; Assistant Professor of Nursing

MICHAEL TYRKUS: B.S., M.S., Ph.D., Wayne State University; Instructor (FTA) in Pediatrics

ODIE T. UDDYBACK: B.A., Dillard University; M.D., Howard University; Clinical Instructor in Psychiatry

HORST UHR: B.A., Wayne State University; M.A., M. Phil., Ph.D., Columbia University; Assistant Professor of Art History

PETER ULINTZ: B.A., M.S.W., Wayne State University; Assistant Professor, School of Social Work

ALEXANDER S. ULLMAN: M.D., University of Munich; Clinical Assistant Professor of Pathology

ROBERT S. UNDERHILL: M.D., Wayne State University; Clinical Assistant Professor of Psychiatry

FRED P. UNRUH: B.A., M.S., Kansas State College; Ph.D., University of Missouri; Associate Professor of Management

KATHRYN URBERG: M.A., University of Chicago; Ph.D., University of Wisconsin; Assistant Professor of Family and Consumer Resources

RONALD V. URICK: B.S., M.A., Ph.D., Ohio State University; Professor of Education

HAROLD E. USNDEK: A.B., M.D., Wayne State University; Clinical Associate Professor of Dermatology and Syphilology

SEETHA N. UTHAPPA: M.B.B.S., Government Medical College, India; Clinical Assistant Professor of Pediatrics

AGNES ANN R. UYENCO: B.S., University of the Philippines; M.S., Wayne State University; Instructor in Occupational Therapy

STEVAN UZELAC: B.B.A., J.D., University of Michigan; Adjunct Professor of Law

GANGADHAR VAISHAMPAYAN: Interscience, Holkar College; M.B.B.S., M.G.M., Medical College, India; M.D., D.M.R.T., Conjoint Board and Royal College of Physicians and Surgeons of England, India; Clinical Instructor in Radiology

VAINUTIS K. VAITKEVICIUS: Academic Degree, Lithuanian College; M.D., Goethe University; Chairman and Professor of Oncology

BERNARD VALENTINI: Dr. Phil., University of Berlin; Ph.D., University of Rome; Associate Professor Emeritus of German

WILLIAM G. VAN DE RIET: B.A., Calvin College; M.S., Ph.D., University of Kansas; Assistant Professor of Radiology

MARY JANE VAN METER: B.S., Syracuse University; M.A., Wayne State University; Ph.D., Michigan State University; Assistant Professor of Family and Consumer Resources

HENRY J. VANDENBERG: B.A., University of Michigan; M.D., Temple University; Clinical Associate Professor of Surgery

LOUIS F. VANDERLINDE: B.A., M.A., Western Michigan University; Ed.D., Michigan State University; Professor of Education

FRANK M. VANDERVEGT: M.B.A., Wayne State University; Assistant Professor of Management

CHANDRA VARADACHARI: M.D., Madras University; Assistant Professor of Pathology

THOMAS G. VARBEDIAN: B.S., M.D., University of Michigan; Clinical Associate Professor of Ophthalmology

PETER B. VAUGHAN: A.B., Temple University; M.S.W., Wayne State University; M.A., University of Michigan; Assistant Professor, School of Social Work

CLARENCE B. VAUGHN: B.S., Benedict College; M.S., Howard University; Ph.D., Wayne State University; M.D., Howard University; Clinical Assistant Professor of Oncology

HABIB VAZIRI: M.D., Tehran University; Clinical Assistant Professor of Psychiatry

SELMA VELILLA: A.A., M.D., Far Eastern University; Instructor in Anesthesiology

- BALAK R. VERMA: F.Sc., Punjab University; B.S., M.B., University of Delhi; Clinical Assistant Professor of Surgery
- HARISH L. VERMA: Bachelor of Technology, Indian Institute of Technology; M.S., M.B.A., Ph.D., Michigan State University; Associate Professor of Management
- RICHARD VERNIER: B.A., Ph.D., University of California at Berkeley; Associate Professor of French
- STEPHEN VICTOR: B.A., University of Wisconsin; A.M., Ph.D., Harvard University; Assistant Professor of Natural Science
- PATRICK VILLANI: M.D., Wayne State University; Clinical Instructor in Ophthalmology
- CHARLES C. VINCENT: B.S., Michigan State University; M.D., Wayne State University; Associate Professor of Gynecology and Obstetrics
- NUROMEO O. VINLUAN: A.A., M.D., University of Santo Tomas, P.I.; Clinical Instructor in Radiology
- SERGE N. VINOGRADOV: B.A., M.A., American University of Beirut; Ph.D., Illinois Institute of Technology; Professor of Biochemistry
- BRUCE VINSON: B.S. (Pharmacy), University of Michigan; Pharm.D., Wayne State University; Adjunct Instructor in Clinical Pharmacy
- C. DALE VINYARD: B.A., M.A., Ph.D., University of Wisconsin; Chairman and Professor of Political Science
- GEORGE J. VISCOMI: A.B., M.D., University of Michigan; Assistant Professor of Otolaryngology
- DONALD W. VISSCHER: B.S., M.D., University of Michigan; Clinical Assistant Professor of Internal Medicine
- ANCA VLASOPOLOS: B.A., Wayne State University; M.A., University of Michigan; Instructor in English
- MARGERIE VOGEL: B.S., Madonna College; B.S.N., University of Michigan; M.S.N., Wayne State University; Instructor in Nursing
- JAY VOGELBAUM: A.B., M.A., Columbia University; Professor of Humanistic Studies
- ANDREAS VON RECUM: Dr. Med. Vet. (M.S.), Freie Universitaet, Berlin; Ph.D., Colorado State University; Associate Professor of Comparative Medicine
- VOLLROD J. VONBERG: B.S., M.D., Wayne State University; Clinical Assistant Professor of Surgery
- NOEL A. VONGLAHN: M.D., University of Michigan; Clinical Instructor in Ophthalmology
- FRANK L. VOORHEIS: B.S., M.B.A., Wayne State University; Ph.D., Michigan State University; Associate Professor of Finance and Business Economics
- IGNATIOS J. VOUDOUKIS: M.D., University of Athens; Clinical Assistant Professor of Internal Medicine
- DONALD J. VREDENBURGH: B.A., Georgetown University; M.B.A., University of Pennsylvania; Ph.D., State University of New York at Buffalo; Assistant Professor of Management
- JOHN VRIEND: B.S., M.A., University of San Francisco; Ed.D., Wayne State University; Professor of Education
- PHYLLIS B. VROOM: B.A., M.S.W., Wayne State University; Associate Professor, School of Social Work
- R. FRED WACKER: A.B., Harvard University; J.D., University of Michigan Law School; M.A., Ph.D., University of Michigan; Assistant Professor of Science of Society
- EUGENE WADE: B.M.E., Wichita State University; M.M., Northwestern University; Adjunct Associate Professor of Music
- HAROLD ROSS WAGENBERG: M.D., University of Western Ontario; Clinical Instructor in Pediatrics
- LYLE G. WAGGONER: A.B., M.D., University of Michigan; Clinical Professor of Otolaryngology
- PHILLIP R. WAGGONER: B.A., M.S., Ph.D., West Virginia University; Assistant Professor of Anatomy
- MONICA WAGNER: B.A., M.A., Wayne State University; Ph.D., Columbia University; Associate Professor of French
- VERN WAGNER: B.S., M.A., Ph.D., University of Washington at Seattle; Professor of English
- BENJAMIN J. WAILES: B.A., Wayne State University; M.D., Howard University; Clinical Instructor in Oncology
- MICHAEL A. WAINSTOCK: B.S., M.B., M.D., University of Minnesota; Clinical Associate Professor of Ophthalmology
- WALDEMAR WAJSZCZUK: M.D., Medical Academy of Warsaw; Assistant Professor (FTA) of Internal Medicine
- EVERAL M. WAKEMAN: B.A., M.D., University of Kansas; Clinical Instructor in Family Medicine
- LACEY WALKER: B.S., M.S., M.D., McGill University; Adjunct Assistant Professor of Anatomy
- CLEOPATRA WALKER: B.S.N., Wayne State University; M.P.H., University of Michigan; Adjunct Associate Professor of Nursing
- EDWARD WALKER: B.S., Hampton Institute; M.Ed., Wayne State University; Ed.D., Western Michigan University; Assistant Professor of Education
- FRANK B. WALKER: B.S., Union College; M.D., Wayne State University; Clinical Assistant Professor of Pathology
- ROBERT G. WALKOWIAK: B.S., M.D., Wayne State University; Clinical Assistant Professor of Gynecology and Obstetrics
- VINCENT C. WALL: B.A., University of Michigan; M.A., Harvard University; Ph.D., University of Wisconsin; Professor Emeritus of English
- ANN WALLACE: B.A., Immaculate Heart College; M.S., Wayne State University; Assistant Professor of Medical Technology
- DAVID WALLACE: A.A., Kellogg Community College; A.B., University of Michigan; M.A., Wayne State University; Instructor in Education
- ROBERT D. WALLIN: B.A., Ph.D., University of Michigan; Instructor in English
- JAMES F. WALLIS: B.S., Wayne State University; M.B.A., University of Michigan; Associate Professor of Accounting
- PAMELA WALSH: B.A., University of Detroit; M.P.H., University of Michigan; Instructor in Nursing
- ALEXANDER J. WALT: M.B., Ch.B., University of Cape Town; M.S., University of Minnesota; Chairman and Professor of Surgery
- FLOYD WALTER: B.A., M.D., University of Nebraska; Clinical Assistant Professor of Internal Medicine
- KENNETH R. WALTERS: B.A., Bowdoin College; Ph.D., Princeton University; Assistant Professor of Greek and Latin
- ROBERT C. WALTON: B.A., Swarthmore College; B.D., Harvard Divinity School; M.A., Ph.D., Yale University; Professor of History
- DANIEL A. WALZ: B.S., St. John Fisher College; M.S., St. Louis University; Ph.D., Wayne State University; Assistant Professor of Physiology
- JOSEPH WANCHIK: B.S., Wayne State University; Adjunct Instructor in Occupational Therapy
- CHARLES C. WANG: B.S., Taiwan College of Engineering; M.S., Brown University; Ph.D., Stanford University; Adjunct Professor of Electrical and Computer Engineering
- EDWARD Y. WANG: B.S., Morningside College; M.S., Purdue University; Ph.D., Tufts University; Associate Professor of Electrical and Computer Engineering
- RICHARD F. WARD: B.S., Bradley University; M.S., New York University; Ph.D., Bryn Mawr College; Associate Professor of Geology
- JAMES N. WARDELL: B.A., Wayne State University; M.D., Meharry Medical College; Clinical Assistant Professor of Gynecology and Obstetrics
- JACK W. WARFIELD: A.B., University of Wisconsin; M.A., University of Minnesota; Ph.D., University of Utah; Associate Professor of Speech
- IRVING WARREN: M.D., University of Toronto; Clinical Assistant Professor of Internal Medicine
- MAX WARREN: B.A., M.D., Wayne State University; Clinical Associate Professor of Psychiatry
- LEON H. WARSHAY: A.B., Brooklyn College; M.A., University of Chicago; Ph.D., University of Minnesota; Professor of Sociology
- RENATA M. WASSERMAN: B.A., Ohio University; M.A., Universidade de Sao Paulo, Brazil; Ph.D., Brandeis University; Assistant Professor of English
- WILLIAM N. WASSON: B.S., University of Louisville; M.S., Atlanta University; M.A., Ed.D., University of Michigan; Professor of Health and Physical Education
- MAURICE WATERS: B.A., Antioch College; Ph.D., University of Chicago; Professor of Political Science
- THOMAS F. WATERS, JR.: B.S., M.Ed., Ph.D., Wayne State University; Associate Professor of Advanced Studies
- ALAN R. WATERSTONE: B.A., LL.B., University of Michigan; Adjunct Professor of Law

JAMES E. WATSON: M.D., Wayne State University; Clinical Assistant Professor of Ophthalmology

WILLIAM W. WATTENBERG: B.S., City College of New York; M.A., Ph.D., Columbia University; Professor of Education

FREDERICK B. WATTS: M.D., University of Michigan; Clinical Assistant Professor of Radiology

DARIMELL WAUGH: B.S., Florida A. and M. University; M.S.N., Wayne State University; Assistant Professor of Nursing

THOMAS WAYMAN: B.A., University of British Columbia; M.F.A., University of California at Irvine; Assistant Professor of English

ARTHUR W. WEAVER: B.A., Pacific Union College; M.D., Loma Linda Medical School; Associate Professor of Surgery

WILLIAM F. WEAVER: M.D., Hahnemann Medical College; Clinical Instructor in Internal Medicine

ELEANOR WEBB: B.S.N., Indiana University; M.S.N., Wayne State University; Instructor in Nursing

J. COPNER WEBSTER: M.B., Ch.B., University of Liverpool; Clinical Assistant Professor of Otolaryngology

JEREMY D. WEBSTER: B.S., M.D., University of Michigan; Clinical Instructor in Urology

MARTIN T. WECHSLER: B.S., Queen's College; M.A., Ph.D., University of Michigan; Associate Dean of the College of Liberal Arts and Professor of Mathematics

NORMAN WECHSLER: M.D., University of Toronto; Instructor in Neurology

FRANCINE WEHMER: B.A., College of the City of New York; M.A., Ph.D., Vanderbilt University; Associate Professor of Psychology

JOHN F. WEIKSNAR: B.A., Canisius College; M.D., State University of New York at Buffalo; Clinical Assistant Professor of Surgery

EARL A. WEILEY: B.Ed., University of Wisconsin; M.A., Northwestern University; Ed.D., University of Michigan; Professor of Education

BRUCE WEINBERGER: B.A., New York University at Fredonia; M.M., University of Indiana; Adjunct Assistant Professor of Music

ALLEN D. WEINER: B.S., M.D., University of Michigan; Clinical Assistant Professor of Pediatrics

LAWRENCE M. WEINER: B.S., M.A., Ph.D., University of Wisconsin; Deputy Dean of the School of Medicine and Professor of Immunology and Microbiology

ALLAN WEINSIEDER: B.S., Bates College; M.S., Ph.D., University of Vermont; Assistant Professor of Anatomy

ROSALYN Y. WEINTRAUB: M.D., Wayne State University; Assistant Professor of Dermatology and Syphilology and Assistant Professor of Pediatrics

ROBERT W. WEISE: B.S., Eastern Illinois University; M.S., Ph.D., University of Illinois; Assistant Professor of Pathology

HAROLD WEISS: B.A., M.S.W., Wayne State University; Associate Professor (FTA) of Pediatrics

HAROLD WEISS: B.A., Yale University; M.D., State University of New York, Downstate; Assistant Professor of Ophthalmology

MARK L. WEISS: B.A., Harpur College; M.A., Ph.D., University of California at Berkeley; Associate Professor of Anthropology

PAUL WEISS: Ph.D., University of Cambridge; Associate Professor of Mathematics

ARNOLD M. WEISSLER: B.A., New York University; M.D., State University of New York; Chairman and Professor of Internal Medicine

FREDRICK WEISSMAN: B.S., M.D., Wayne State University; Clinical Assistant Professor of Surgery

ROY L. WEITZEL: A.A., Bakersfield College; A.B., M.A., San Francisco State College; Ph.D., Washington University; Assistant Professor of English

MICHAEL J. P. WELLAND: B.A., Cambridge University; A.M., Harvard University; Ph.D., Cambridge University; Assistant Professor of Geology

BETTY LOU WELSH: B.S., M.S.W., University of Pittsburgh; Associate Professor, School of Social Work

GARY J. WELSH: M.D., University of Western Ontario; Clinical Assistant Professor of Surgery

DIETER WENDLING: D.D.S., M.D., Johannes-Gutenberg University, Mainz, Germany; Clinical Assistant Professor of Otolaryngology

FRANK T. R. WENG: M.D., National Taiwan University; Associate Professor of Pediatrics

LOWELL E. WENGER: B.S., M.S., Ph.D., Purdue University; Assistant Professor of Physics

MORTON G. WENGER: B.A., M.A., Ph.D., Temple University; Assistant Professor of Sociology

PAUL WENIG: B.A., Brooklyn College; D.O., Kansas City College of Osteopathic Medicine; Instructor in Internal Medicine

JEAN WERNER-BELAND: B.S.N., Seattle University; M.N., University of Washington; Associate Professor of Nursing

RICHARD WERRY: B.A., M.A., University of Pittsburgh; Associate Professor of English

FREDERICK W. WERTHEIMER: B.S., D.D.S., University of Michigan; M.S., Georgetown University; M.S.D., Northwestern University; Clinical Associate Professor of Pathology

RICHARD K. WESLEY: B.S., George Washington University; D.D.S., St. Louis University; M.S.D., Indiana-Purdue University; Clinical Assistant Professor of Pathology

ALICE WEST: B.S.N., M.S.N., Wayne State University; Assistant Professor of Nursing

DOUGLAS H. WEST: A.B., J.D., Wayne State University; Adjunct Professor of Law

NORBERT D. WEST: J.U.D., University of Vienna; A.B.L.S., University of Michigan; Professor Emeritus of Law

FRANKLIN H. WESTERVELT: B.S.E., M.S.E., Ph.D., University of Michigan; Director, Computing and Data Processing Center and Professor of Mathematics and Electrical and Computer Engineering

RICHARD A. WETZEL: B.S., University of Michigan; M.D., University of Cincinnati; Clinical Assistant Professor of Internal Medicine

BURT T. WEYHING III: B.S., M.D., Wayne State University; Clinical Instructor in Radiology

MARSHALL A. WHEATLEY: A.B., A.M., Albion College; Ph.D., University of Michigan; Associate Professor Emeritus of Physics

PAUL R. WHEATON: B.A., Michigan State University; M.B.A., Wayne State University; Assistant Professor of Accounting

BLAINE C. WHITE: B.A., M.D., Wayne State University; Clinical Instructor in Surgery

MAURICE O. WHITE: B.A., M.Ed., Ph.D., Wayne State University; Associate Professor of Education

ROBERT C. WHITE: B.S., Eastern Michigan University; M.S., University of Michigan; Associate Professor of Health and Physical Education

RAYMOND J. WHITEMAN: B.S., University of Detroit; M.D., Marquette University; Clinical Instructor in Radiology

ALAN B. WHITMAN: B.S., University of Illinois; M.S., Ph.D., University of Minnesota; Associate Professor of Mechanical Engineering

R. DOUGLAS WHITMAN: B.S., Syracuse University; M.A., Queen's University; Ph.D., Brandeis University; Assistant Professor of Psychology

CHARLES F. WHITTEN: A.B., University of Pennsylvania; M.D., Meharry Medical College; Professor of Pediatrics

MARILYN WICKER: B.S., Berea College; M.S.N., Wayne State University; Assistant Professor of Nursing

STEVEN WIDLANSKY: B.S., M.D., Wayne State University; Clinical Assistant Professor of Internal Medicine

JOHN C. WIDMAN: B.S., University of Michigan; M.A., Wayne State University; Instructor in Pathology

ISRAEL WIENER: B.A., M.D., Wayne State University; Clinical Instructor in Family Medicine

FRED K. WIETERSEN: B.A., M.D., Wayne State University; Clinical Assistant Professor of Radiology

NANCY E. WIGGERS: B.A., Wellesley College; Ph.D., Brown University; Assistant Professor of Greek and Latin

ROBERT J. WILBERT: B.F.A., M.F.A., University of Illinois; Professor of Art

JOHN WILCOX: B.A., Indiana University; M.A., University of Wisconsin; Ph.D., University of Michigan; Professor Emeritus of English

JAMES B. WILEY: B.S., University of Oregon; M.B.A., Portland State University; Ph.D., University of Washington; Assistant Professor of Marketing

- RUDOLF E. WILHELM: B.S., M.D., University of Illinois; Clinical Associate Professor of Dermatology and Syphilology
- DALE L. WILLIAMS: B.A., Eastern Michigan University; M.D., Wayne State University; Clinical Instructor in Family Medicine
- GERTHA WILLIAMS: Ph.D., Professor Emeritus of Education
- MARY LOUISE WILLIAMS: B.S., M.S., University of Detroit; Ph.D., Wayne State University; Assistant Professor of Anatomy, Mortuary Science
- PAUL R. WILLIAMS: B.S., Evangel College; M.D., Washington University; Clinical Instructor in Pediatrics
- ROBERT B. WILLIAMS: B.S. (Pharmacy), M.S., Ohio State University; Adjunct Assistant Professor of Hospital Pharmacy
- ROBERT WILLIAMS: B.M., University of Arizona; Adjunct Assistant Professor of Music
- STEPHEN A. WILLIAMS: B.S., Illinois Institute of Technology; Ph.D., California Institute of Technology; Associate Professor of Mathematics
- MARILYN L. WILLIAMSON: B.A., Vassar College; M.A., University of Wisconsin; Ph.D., Duke University; Associate Dean of the College of Liberal Arts and Professor of English
- WILLIAM A. WILLOUGHBY: B.A., M.D., University of Colorado; Clinical Instructor in Ophthalmology
- SHERMAN A. WILLSON: B.A., Wayne State University; M.A., University of Michigan; Professor of Art
- FREEMAN M. WILNER: B.S., M.D., Wayne State University; Clinical Assistant Professor of Internal Medicine
- HARVEY I. WILNER: B.S., University of Vermont; M.D., University of Maryland; Clinical Assistant Professor of Radiology
- IRVIN A. WILNER: B.A., M.D., Wayne State University; Clinical Instructor in Gynecology and Obstetrics
- ALAN NEAL WILSON: M.B.B.S., London University; Assistant Professor of Surgery
- ANDREW WILSON: B.A., Oberlin College; M.D., Wayne State University; Clinical Assistant Professor of Internal Medicine
- B. DAVID WILSON: A.B., Albion College; M.D., Wayne State University; Clinical Instructor in Internal Medicine
- FRANCIS M. WILSON: B.S., College of Holy Cross; M.D., University of Michigan; Associate Professor of Internal Medicine
- GERALD S. WILSON: B.A., Oberlin College; M.D., Case Western Reserve University; Clinical Associate Professor of Surgery
- JACQUELINE WILSON: B.S., Michigan State University; M.S.N., Wayne State University; Assistant Professor of Nursing
- ROBERT F. WILSON: B.A., Lehigh University; M.D., Temple University; Professor of Surgery
- SYLVIA L. WILSON: B.A., Boston University; M.S.W., Wayne State University; Assistant Director of Admissions and Student Services and Assistant Professor, School of Social Work
- DIAN WIMBERLEY: B.S.N., Michigan State University; M.S.N., Wayne State University; Instructor in Nursing
- ROBERT WINANS: B.A., Cornell University; M.A., Ph.D., New York University; Assistant Professor of English
- EDWARD S. WINBAUM: M.D., University of Toronto; Clinical Instructor in Pediatrics
- DAVID WINEMAN: B.A., Wayne State University; M.S.W., University of Michigan; Professor, School of Social Work
- SAUL WINEMAN: B.A., M.A., University of Michigan; Assistant Professor of Urban Humanities
- JOHN W. WIREMAN: B.A., California State University; Ph.D., University of Illinois; Assistant Professor of Biology
- PATRICK T. WIRTZ: B.B.A., M.B.A., University of Detroit; Assistant Professor of Accounting
- EDWARD M. WISE: B.A., University of Chicago; LL.B., Cornell University; LL.M., New York University; Professor of Law
- GARY WITT: B.A., University of Minnesota; M.A., Wayne State University; Associate Professor of Speech
- NANCY WITTSTOCK: B.S., Wayne State University; Instructor in Anesthesia
- ELEANOR P. WOLF: B.A., M.A., Ph.D., Wayne State University; Professor of Sociology
- JOHN N. WOLFE: M.D., Western Reserve University; Clinical Professor of Radiology
- STANLEY B. WOLFE: A.B., M.D., Wayne State University; Clinical Assistant Professor of Internal Medicine
- SEYMOUR J. WOLFSON: B.S., Wayne State University; M.S., University of Chicago; Ph.D., Wayne State University; Associate Professor of Mathematics
- JEROME M. WOLGIN: B.A., Political Science, University of Pennsylvania; M.Ph., Ph.D., Yale University; Assistant Professor of Economics
- GERTRAUD WOLLSCHLAEGER: M.D., Ludwig Maximilian University of Munich; Professor of Radiology
- PAUL B. WOLLSCHLAEGER: M.D., Ludwig Maximilian University of Munich; Professor of Radiology
- YIU-HUEN WONG: B.Sc., Massachusetts Institute of Technology; M.S., Ph.D., University of Wisconsin; Assistant Professor of Physics
- DOUGLAS J. WOOD: B.S., University of Massachusetts; M.D., Tufts University; Adjunct Assistant Professor of Occupational and Environmental Health
- JESSIE I. C. WOOD: B.S., M.S., Ph.D., University of Michigan; Instructor in Anatomy
- PAULA WOOD: B.A., M.A., Ph.D., Michigan State University; Assistant Professor of Education
- RALPH F. WOODBURY: M.D., Wayne State University; Clinical Instructor in Family Medicine
- SCOTT W. WOODS: B.S., M.D., Wayne State University; Clinical Assistant Professor of Surgery
- WILLIAM T. WOODWARD: B.S., University of Wisconsin; M.A., Wayne State University; Professor of Art
- JAMES WOODYARD: B.Ed., Duquesne University; M.S., Ph.D., University of Delaware; Associate Professor of Science and Technology
- PAUL V. WOOLLEY, JR.: A.B., Kansas University; M.S., University of Idaho; M.D., Harvard University; Professor of Pediatrics
- HENRY C. WORMSER: B.S. (Pharmacy), M.S., Temple University; Ph.D., University of Wisconsin; Professor of Pharmaceutical Chemistry
- PRUDENTIA WORTH: B.S., Wayne State University; Instructor in Anesthesia
- CHARLES H. WRIGHT: B.S., Alabama State College; M.D., Meharry Medical College; Clinical Assistant Professor of Gynecology and Obstetrics
- FRANK H. WRIGHT: D.V.M., Michigan State University; Adjunct Assistant Professor of Comparative Medicine
- JOHN G. WRIGHT: B.S.M.E., Wayne State University; M.S.E., University of Michigan; Associate Professor of Engineering Technology
- ROBERT WRIGHT: B.S., M.A., Eastern Michigan University; Ph.D., Clark University; Assistant Professor of Geography
- ROLLAND WRIGHT: B.A., San Diego State University; M.A., University of California at Berkeley; Ph.D., Brandeis University; Professor of Social Science
- CLYDE WU: B.A., Johns Hopkins University; M.D., Columbia University; Clinical Associate Professor of Internal Medicine
- ROBERT E. WURTZ: B.S., State University of New York at Fredonia; M.Ed., State University of New York at Buffalo; M.A., Ed.D., Teacher College, Columbia University; Professor of Education
- PHILIP J. WYDICK, JR.: B.B.A., M.B.A., University of Detroit; Assistant Professor of Accounting
- FLOYD WYLIE: B.A., M.A., Ph.D., Wayne State University; Adjunct Assistant Professor of Psychology
- ROBERT F. WYLIN: M.D., Marquette University; Assistant Professor of Pathology
- PETRONIO C. YADAO: M.D., Far Eastern University; Clinical Instructor in Pediatrics
- RAVINDRANATH YADDANAPUDI: M.B.B.S., Gandhi Medical College; Assistant Professor (FTA) of Pediatrics
- SUZANNE YAGLEY: B.S.N., M.S.N., Wayne State University; Assistant Professor of Nursing
- ROBERT D. YANAL: B.A., University of Pittsburgh; M.A., Ph.D., University of Illinois at Chicago Circle; Assistant Professor of Philosophy
- JOSE YANEZ: M.D., University of Puerto Rico; Clinical Assistant Professor of Internal Medicine.
- ANDREW T. YANG: B.A., Middlebury College; Ph.D., Adelphi College; Adjunct Assistant Professor of Psychology

CHI-CHUNG YANG: B.S., Cheng Kung University; Ph.D., Saint Louis University; Assistant Professor of Physics

W. BENNETT YORT: B.A., University of Michigan; M.B.A., Wayne State University; Instructor in Mortuary Science

FRANK O. YOUKSTETTER: B.S., M.Ed., Wayne State University; EdD., Columbia University; Professor of Education

KUM-JUNG YOUN: M.D., M.S., Seoul National University; Clinical Instructor in Pathology

CLYDE WILLIAM YOUNG: B.S., South West Missouri State University; M.M., University of Michigan; M.S., Ph.D., University of Illinois; Professor of Music

DAVID J. YOUNG: B.S., Wayne State University; M.D., University of Michigan; Clinical Instructor in Internal Medicine

IRVING YOUNG: B.S., M.D., Wayne State University; Clinical Assistant Professor of Internal Medicine

PATRICIA YOUNG: B.S., M.S., Wayne State University; Adjunct Instructor in Medical Technology

RICHARD D. YOUNG: M.D., Temple University; Clinical Professor of Orthopedic Surgery

ROBERT E. YOUNG: B.S.E., University of California at Los Angeles; M.S.I.E., Ph.D., Purdue University; Assistant Professor, Industrial Engineering and Operations Research

ELIZABETH YOUNGJOHN: B.A., M.A., University of Michigan; Associate Professor Emeritus of Speech

BEONGCHEON YU: B.A., Seoul National University; M.A., University of Kansas; Ph.D., Brown University; Professor of English

FRANCIS T. S. YU: B.S.E.E., Mapua Institute of Technology; M.S.E.E., Ph.D., University of Michigan; Professor of Electrical and Computer Engineering

LEARIE N. YUILLE: B.S., Howard University; M.D., University of Michigan; Clinical Instructor in Family Medicine

ALVIN H. YUNGTON: B.M., M.A., Wayne State University; Adjunct Assistant Professor of Music

EDWARD C. YUREWICZ: B.A., University of Delaware; Ph.D., Johns Hopkins University; Assistant Professor of Gynecology and Obstetrics

DAWN ZAGORNIK: B.A., Albion College; B.S.N., M.S.N., Wayne State University; Associate Professor of Nursing

JOSEPH B. ZAJAC: B.F.A., M.F.A., Eastern Michigan University; Instructor in Art

BENNIE ZAK: B.S., Ph.D., Wayne State University; Professor of Pathology

LOUIS R. ZAKO: B.A., M.D., University of Michigan; Clinical Instructor in Family Medicine

EDWARD J. ZALESKI: B.S., University of Scranton; M.D., Wayne State University; Clinical Assistant Professor of Internal Medicine

THOMAS E. ZAREMBA: B.A., Oakland University; Instructor in Modeling

BARRY L. ZARETSKY: B.A., New York University; J.D., University of Michigan; Assistant Professor of Law

BOHDAN ZAREWYCH: B.A., Wayne State University; D.O., Chicago College of Osteopathy; Instructor in Gynecology and Obstetrics

PAUL M. ZAVELL: B.A., M.D., Johns Hopkins University; Clinical Instructor in Pediatrics

GREGORY ZECK: B.A., University of Minnesota; Ph.D., University of Texas; Assistant Professor of English

JACQUELINE ZEFF: B.A., University of Michigan; M.A., Wayne State University; Ph.D., University of Pittsburgh; Assistant Professor of English

GERALD W. ZEIG: B.S. (Pharmacy), University of Michigan; Adjunct Instructor in Hospital Pharmacy

MICHAEL A. ZELENAK: B.S., M.Ed., Wayne State University; Assistant Professor of Music

JIRI ZEMLIČKA: M.S., Charles University; Ph.D., Institute of Organic Chemistry and Biochemistry; Associate Professor of Oncology

SEYMOUR ZIEGELMAN: B.A., University of Michigan; M.D., Wayne State University; Clinical Instructor in Gynecology and Obstetrics

GEORGE W. ZIEGELMUELLER: B.A., Depauw University; M.A., Southern Illinois University; Ph.D., Northwestern University; Professor of Speech

ANNE Y. ZIMMER: B.A., M.A., Ph.D., Wayne State University; Assistant Professor of History

MICHAEL J. ZIMMER: B.A., J.D., Marquette University; Associate Professor of Law

LONNY ZIMMERMAN: B.Arch., University of Detroit; M.U.P., Wayne State University; Adjunct Faculty in Urban Planning

WALTER J. ZIMMERMAN: B.A., Eastern Michigan University; M.A., M.D., Wayne State University; Clinical Assistant Professor of Internal Medicine

ALKIS P. ZINGAS: B.S., M.D., Wayne State University; Clinical Instructor in Radiology

ROBERT A. ZINK: B.S., University of Detroit; M.D., Wayne State University; Clinical Instructor in Pediatrics

RICHARD M. ZIRKIN: B.S., M.D., Western Reserve University; Clinical Assistant Professor of Pathology

ANN G. ZIRULNIK: B.S., Wayne State University; Assistant Professor of Dance and Physical Education

STEVEN ZISKIND: B.S., Massachusetts Institute of Technology; M.A., Ph.D., University of California at Los Angeles; Assistant Professor of Mathematics

EDWARD C. ZOBEL: B.S., M.S., University of Michigan; Associate Professor of Mechanical Engineering

ELDRED G. ZOBL: B.S., University of Detroit; M.D., Wayne State University; Clinical Assistant Professor of Internal Medicine

NORMAN ZUCKER: M.S., M.D., Wayne State University; Clinical Instructor in Ophthalmology

MARSHALL F. ZUMBERG: B.S., Michigan State University; M.A., Wayne State University; Ph.D., Michigan State University; Instructor in Education

JAMES C. ZURAWSKI: B.A., M.D., Wayne State University; Clinical Instructor in Orthopedic Surgery

JOHN ZUZGA: B.S., St. Bonaventure University; D.O., Chicago College of Osteopathic Medicine; Instructor in Internal Medicine

ANN ZUZICH: B.S., University of Detroit; M.S.N., Wayne State University; Associate Professor of Nursing

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 ARNOLD HIRSHON: B.A., State University College of New York at Plattsburgh; M.L.S., Indiana University
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 EDWARD H. F. LEE: L.L.B., Taiwan Provincial Chung Hsing University; M.A.L.S., University of Oklahoma

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 CHERRIE MUDLOFF: Ph.B., Wayne State University; M.S.L.S., University of Michigan
 KAREN A. MYTTY: B.A., Western Michigan University; M.S.L.S., Wayne State University
 CAROLYN E. NAVARRE: B.A., M.S.L.S., Wayne State University; Systems Analyst
 ROY A. NUFFER: B.A., M.S.L.S., Wayne State University; Head, Central Circulation Department
 VERN M. PINGS: Ph.B., University of Chicago; B.A., University of Wisconsin; M.A., Columbia University; M.A., Ph.D., University of Wisconsin; Director of University Libraries and Professor, School of Medicine
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 SARAH S. RAINEY: B.A., Vanderbilt University; M.L.S., Peabody College for Teachers
 BERYL E. ROBBINS: B.A., University of Michigan; M.S.L.S., Wayne State University
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 HOWARD SULLIVAN: A.B., University of Connecticut; M.S.L.S., Columbia University; Assistant Director
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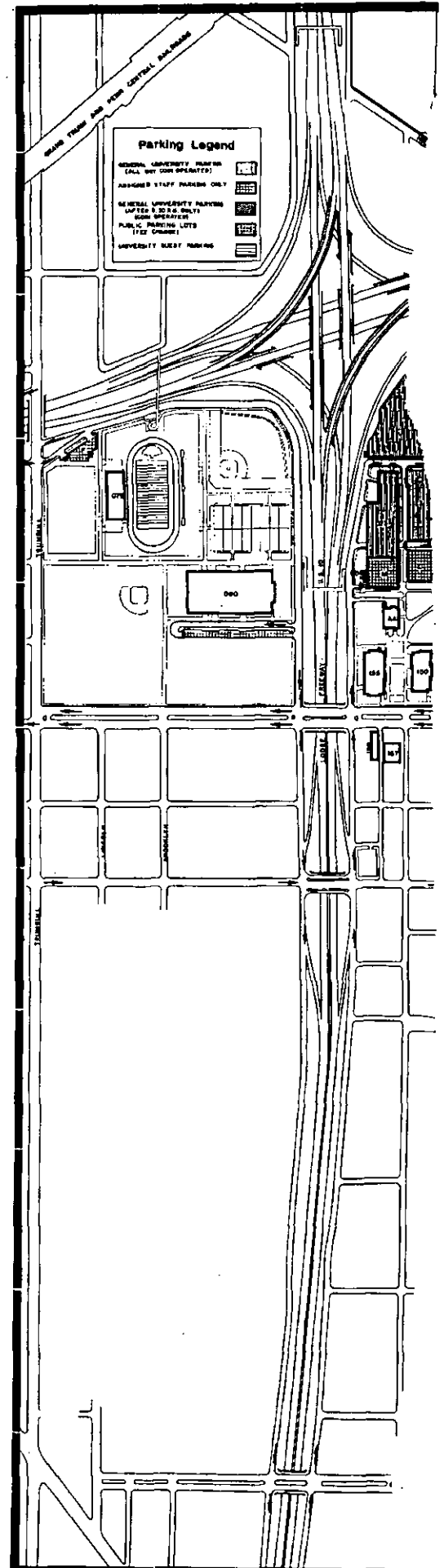
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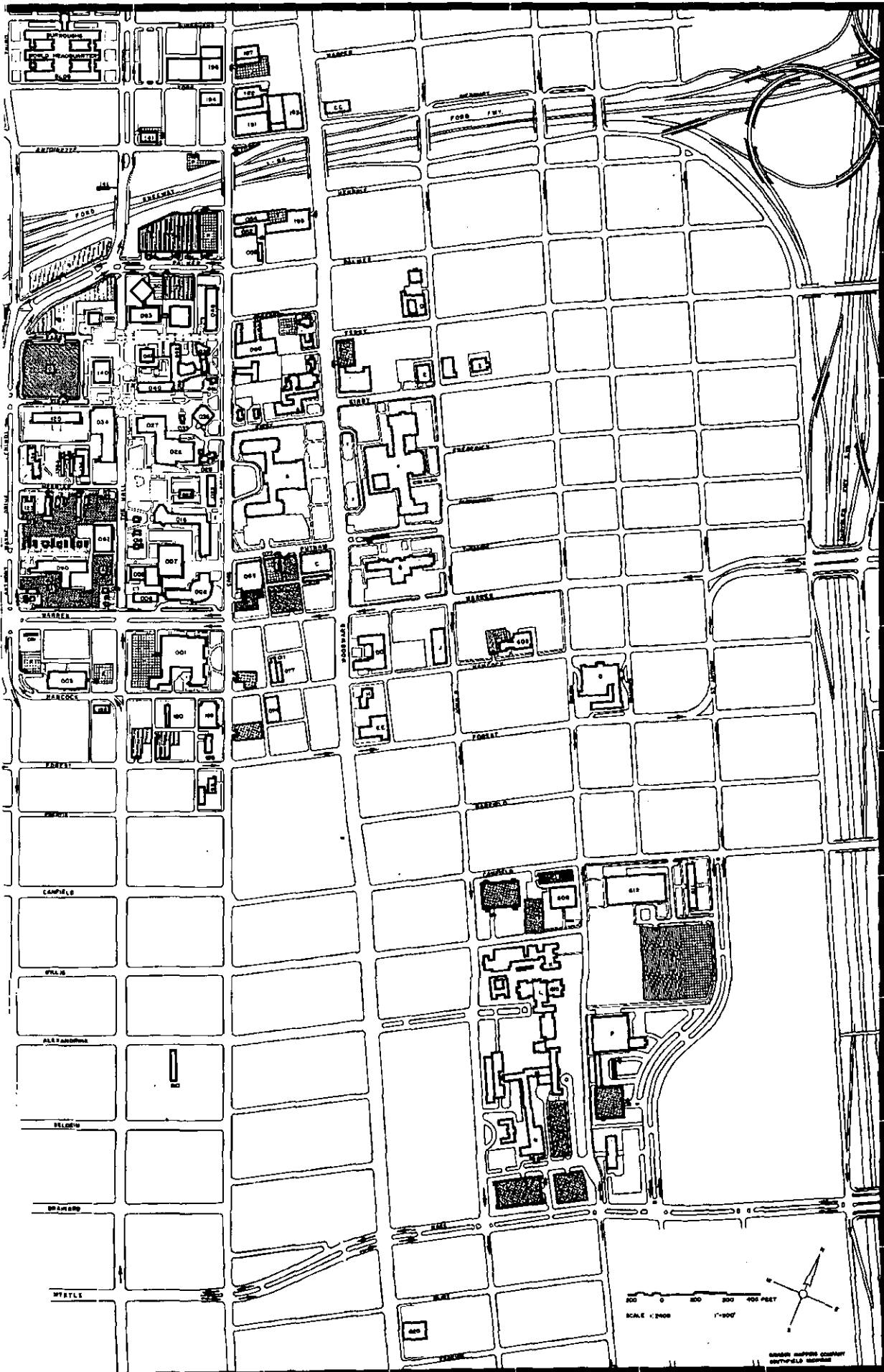
MAIN CAMPUS

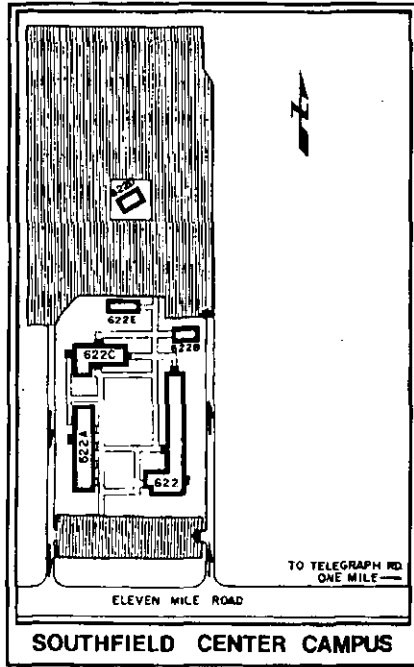
- 001 Old Main
- 003 Physics Building
- 005 Science Hall
- 006 Life Sciences Building
- 007 Chemistry Building
- 008 Science Library
- 016 State Hall
- 018 Monteith Center
- 022 Meyer and Anna Prentis Hall
- 023 Helen L. DeRoy Lecture Hall
- 026 G. Flint Purdy Library
- 027 Kresge Library
- 028 Center for Urban Studies
- 033 Art and Art History Building
- 034 Student Center
- 036 Walter P. Reuther Library of Labor and Urban Affairs
- 038 Music Wing — Community Arts Center
- 039 Community Arts Auditorium
- 040 Art Wing — Community Arts Center
- 042 Alumni House — Community Arts Center
- 043 McGregor Conference Center
- 048 Richard Cohn Hall
- 050 Shapero Hall of Pharmacy
- 051 Parking Structure No. 1
- 053 Law School
- 056 Parking Structure No. 2
- 060 University Services Building; Bookstore North
- 064 Institute of Labor; University Development Offices
- 069 David Mackenzie Hall; University Bookstore
- 072 Parking Structure No. 3
- 074 University Theatres Offices
- 077 Public Safety Department
- 079 Wayne Stadium
- 080 Frederick C. Matthaei Physical Education Center
- 090 College of Engineering Building
- 092 University Bookstore (under construction)
- 117 Monteith College Dean's Office
- 125 Helen Newberry Joy Residence for Women
- 134 Helen L. DeRoy Apartments
- 140 College of Education Building
- 141 Speech and Hearing Center
- 150 General Lectures Hall
- 155 Speech and Foreign Languages Building
- 167 Engineering Technology Building
- 189 Hilberry Classic Theatre
- 190 Reading and Study Skills; English Composition Clinic
- 191 Administrative Services Buildings No. 1 and 2
- 192 Administrative Services Building No. 3
- 193 Computing and Data Processing Center
- 196 Metropolitan Detroit Justice Institute
- A Detroit Historical Museum
- B Detroit Public Library
- D Merrill-Palmer Institute
- E International Institute
- F Detroit Institute of Arts
- G Rackham Educational Memorial Building

DETROIT MEDICAL CENTER

- 608 Vera Shiffman Medical Library
- 609 C. S. Mott Center for Human Growth and Development
- 611 Medical Research Building
- 612 Gordon H. Scott Hall of Basic Medical Sciences
- 615 Kresge Eye Institute
- J Prentis Cancer Center
- K The Grace Hospital
- L Harper-Webber Hospital
- M Harper Hospital
- N Rehabilitation Institute
- O Hutzel Hospital
- P Children's Hospital of Michigan

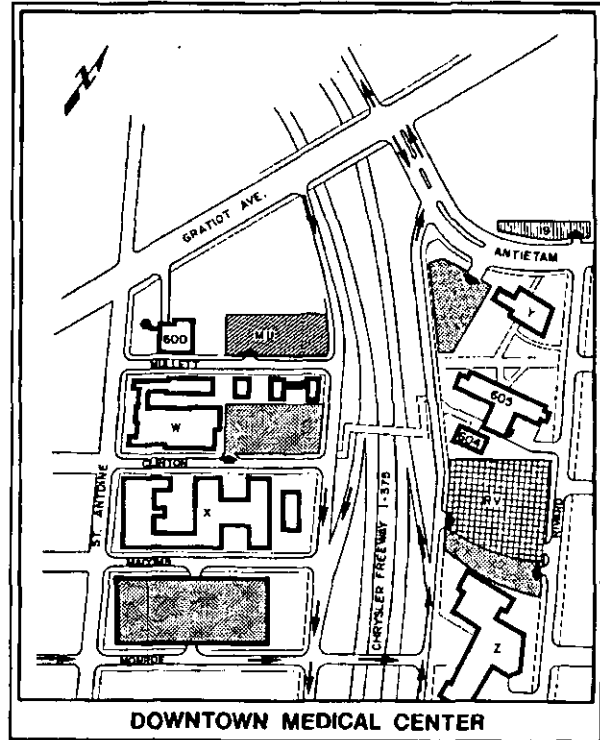






SOUTHFIELD CENTER

- 622 Administrative Office and Classroom Building
- 622A Classroom Building
- 622B Classroom Building
- 622C Library and Lounge



DOWNTOWN MEDICAL CENTER

- 600 Clinical Laboratory Building
- 604 Health Sciences Annex
- 605 Health Sciences
- W Detroit Memorial Hospital
- X Detroit General Hospital
- Y Wayne County Medical Society
- Z Lafayette Clinic

SIGNS AND ABBREVIATIONS

SUBJECT AREA CODES

The following abbreviations of departments and subject areas are used in prerequisites to courses and in curricular information:

ACC — Accounting
AGS — Advanced General Studies
AHP — Allied Health Programs
ASC — Aerospace Studies (ROTC)
A H — Art History
ANA — Anatomy
A N — Anesthesia
ANT — Anthropology
ARA — Aramaic
ARB — Arabic
ARM — Armenian
ART — Art
A S — American Studies
ASN — Asian Studies
AST — Astronomy
AUD — Audiology

B A — Business Administration
B E — Basic Engineering
BCH — Biochemistry
BKS — Black Studies
BIO — Biology
B L — Basic Law

C E — Civil Engineering
CET — Civil Engineering Technology
CHE — Chemical Engineering
CBS — Chicano-Boricua Studies
CHI — Chinese
CHM — Chemistry
CLA — Classics
COM — Comparative Medicine
CRJ — Criminal Justice
CSC — Computer Science

D E — Driver Education
DNC — Dance

ECO — Economics
ECE — Electrical and Computer Engineering
EET — Electrical/Electronic Engineering Technology
ELD — Education Leadership Division
ENG — English
ENV — Environmental Studies
ET — Engineering Technology
EUR — European Literature

FAC — Family and Consumer Resources
FBE — Finance and Business Economics
FRE — French

GST — General Science and Technology
GSS — General Social Science
GUH — General Urban Humanities
GEG — Geography
GEL — Geology
GBR — German
G L — Graduate Law
GRK — Greek

H E — Health Education
HEA — Health
HEB — Hebrew

HIS — History
HON — Honors
HUM — Humanities
H S — Humanistic Studies
HSS — Humanistic and Social Studies

I D — Interdisciplinary
I E — Industrial Engineering
IHS — Interdisciplinary Health Sciences
I M — Immunology and Microbiology
I S — International Studies
ITA — Italian

JOU — Journalism

LAT — Latin
LIN — Linguistics
L S — Library Science

MCT — Mechanical Engineering Technology
M E — Mechanical Engineering
MET — Metallurgical Engineering
MGT — Management
MIT — Manufacturing/Industrial Engineering Technology
MKT — Marketing
MAT — Mathematics
MED — Music Education
MON — Monteith Interdivisional
M S — Department of Mortuary Science
MSC — Military Science (ROTC)
M T — Medical Technology
MUA — Applied Music — Classroom Instruction
MUH — Music History and Literature
MUP — Applied Music — Private Instruction
MUT — Music Theory

N E — Near Eastern and Asian Studies
N S — Natural Science
NUR — Nursing

OEH — Occupational and Environmental Health
O T — Occupational Therapy

P A — Pharmaceutical Administration
P C — Pharmaceutical Chemistry
PCG — Pharmacognosy
PCL — Pharmacology (Pharmacy)
PCE — Pharmacy Continuing Education
P E — Physical Education
PHA — Pharmaceutics
PHC — Pharmacology (Medicine)
PHI — Philosophy
PHS — Physical Science
PHY — Physics
POL — Polish
POR — Portuguese
P S — Political Science
PSL — Physiology
PSY — Psychology
P T — Physical Therapy
PTH — Pathology
PYC — Psychiatry

R T — Radiation Technology
RAD — Radiology
R P — Recreation and Parks Services
RUS — Russian

SCS — Science of Society
SHS — Socio-Humanistic Studies
S L — Seminar Law
SLA — Slavic
SOC — Sociology
SPA — Spanish

SPH — Speech
 SS — Social Science
 STA — Statistics
 SW — Social Work
 SWA — Swahili

TBF — Theoretical and Behavioral Foundations
 TED — Teacher Education Division

UKR — Ukrainian
 US — Urban Studies Co-Major Program
 UP — Urban Planning

VTS — Vocational and Technical Studies

COURSE NUMBERING SYSTEMS

For the College of Education

0000-4999 Undergraduate credit only.
 5000-6999 Undergraduate or graduate credit.
 7000-8999 Open to graduate students exclusively.
 9000-9999 Open to doctoral students exclusively.

For all other Schools and Colleges

0000-0099 No degree credit; graded S and U.
School of Business Administration: Elementary courses auxiliary to the usual academic program.

College of Engineering: Orientation courses.

0100-0199 Primarily freshman courses; open to all undergraduates.

0200-0299 Primarily freshman and sophomore courses; open to all undergraduates who have completed course prerequisites.

College of Business Administration: Primarily junior college courses.

College of Engineering: Lower division courses; open to all undergraduates.

Monteith College: With consent of the instructor, a student may take a Monteith course numbered higher than one which a student in his class normally may be expected to take.

0300-0499 Junior and senior courses; undergraduate credit. (Ordinarily freshmen and sophomores will not be permitted to register for these courses.)

College of Engineering: Upper division courses.

Monteith College: Primarily courses for upper-classmen. With consent of the instructor, a student may take a Monteith course numbered higher than one which a student in his class normally may be expected to take.

0500-0699 Junior and senior courses; undergraduate and graduate credit.

0700-0899 Open to graduate students exclusively.

0900-0999 Open to doctoral students exclusively.

662 *Signs and Abbreviations*

SYMBOLS AND ABBREVIATIONS

Used in Course Listings

F, W, Sp, Su in parenthesis following *College of Education* course description indicates the quarter in which the course will be offered.

The *College of Education* reserves the right to cancel a course offering in any quarter due to inadequate enrollment or other unforeseen circumstances.

* *College of Pharmacy:* An asterisk preceding the course number in the Courses of Instruction indicates required undergraduate courses.

† *A dagger* prefixed to the course number indicates that the course may be elected for minor or cognate credit, but may not count toward a graduate major in this department.

‡ *A double dagger* prefixed to a course indicates that the course may extend beyond one quarter. Credits are awarded only on completion of the entire course. Students should consult the *Schedule of Classes* for detailed information.

u *A letter u* prefixed to a course numbered 0500-0699 in the *Schedule of Classes* indicates the course may be elected only for undergraduate credit.

(—,—)

The first number in parenthesis following a course title indicates the number of clock hours per week assigned to lecture and/or recitation; the second number indicates the number of clock hours per week assigned to laboratory, field work, practicum.

Cr.
(credit)

The amount of credit for each course is indicated by the number or numbers following the abbreviation.

Max.
(maximum)

Course may be re-elected to the maximum credit indicated.

Prereq:
(prerequisite)

Course must be preceded by the indicated course or courses or other requirements.

Coreq:
(corequisite)

Course must be accompanied by the indicated course or courses.

Cross-listed courses may be taken for major credit in more than one department, as indicated by cross-references which appear in parenthesis either before or after the title. In registering for cross-listed courses, the student should be certain that he has designated the department and course number under which he wishes to earn the credit.

Faculty Roster

(FTA) — Full-time Affiliate

INDEX

GENERAL INFORMATION

Contained in this section are: general rules and regulations of the University, specific regulations of the Graduate Division, and descriptions and locations of University student services. For additions, amendments, and specific applications of these regulations, students should consult the individual school and college sections of this bulletin.

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