

WAYNE STATE UNIVERSITY Bulletin 1982-1984



Wayne State
University

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University



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Academic Calendar 1982-1984

Spring/Summer — Term III, 1982

Term Begins	Mon., May 3, 1982
Final Registration	Mon., May 3 - Thurs., May 6
Last Day for filing degree applications	Thurs., May 6
Classes Begin	Mon., May 10
Memorial Day Recess	Mon., May 31
Classes end for Spring Term (IIIA)	Mon., June 28
Study days for Spring/Summer Term	Tues., June 29 - Fri., July 2
Examination period for Spring Term (IIIA)	Tues., June 29 - Fri., July 2
Independence Day Recess	Mon., July 5
Summer Term (IIIB) begins	Tues., July 6
Priority Registration for Fall Term	Mon., June 28 - Fri., July 16
Add-drop period for students who priority registered	Mon., Aug. 9 - Thurs., Aug. 12
Classes end	Mon., Aug 23
Examination week	Tues., Aug. 24 - Mon., Aug. 30
Spring/Summer Term III ends	Tues., Aug. 31, 1982

Fall — Term I, 1982

University year begins	Tues., Aug. 31, 1982
Term begins	Wed., Sept. 1
Final registration	Mon., Aug. 30 - Fri., Sept. 3
Last day for filing degree applications	Fri., Sept. 3
Labor Day Recess	Mon., Sept. 6
Classes begin	Tues., Sept. 7
Priority registration for Winter Term	Mon., Oct. 18 - Fri., Nov. 5
* Day scheduled as Thursday	Tues., Nov. 23
* Day scheduled as Friday	Wed., Nov. 24
Thanksgiving Day Recess	Thurs., Fri., Sat., Nov. 25, 26, 27
Add-drop period for students who priority registered	Mon., Nov. 29 - Thurs., Dec 2
Commencement	Tues., Dec. 14
Classes end	Wed., Dec. 15
Examination week	Thurs., Dec. 16 - Wed., Dec. 22
Term ends	Fri., Dec. 31, 1982

Winter — Term II, 1983

Term begins	Sat., Jan. 1, 1983
Final registration	Mon., Jan. 3 - Fri., Jan. 7
Last day for filing degree applications	Fri., Jan. 7
Classes begin	Mon., Jan. 10
Priority registration for Spring/Summer Term	Mon., Feb. 28 - Fri., March 11
Spring Recess	Mon., March 14 - Sat., March 19
Add-drop period for students who priority registered	Mon., April 4 - Thurs., April 7
Classes end	Sat., April 23
Study days	Mon., Tues., April 25, 26
Examination week	Wed., April 27 - Tues., May 3
Term ends	Tues., May 3
Commencement	Thurs., May 5, 1983

Spring/Summer — Term III, 1983

Term begins	Wed., May 4, 1983
Final registration	Mon., May 2 - Fri., May 6
Last day for filing degree applications	Fri., May 6
Classes begin	Mon., May 9
Memorial Day Recess	Mon., May 30
Classes end for Spring Term (IIIA)	Mon., June 27
Priority registration for Fall Term	Mon., June 27 - Fri., July 15
Study days for Spring/Summer Term	Tues., June 28 - Fri., July 1
Examination period for Spring Term (IIIA)	Tues., June 28 - Fri., July 1
Independence Day Recess	Mon., July 4
Summer Term (IIIB) begins	Tues., July 5
Add-drop period for students who priority registered	Mon., Aug. 8 - Thurs., Aug. 11
Classes End	Mon., Aug. 22
Examination week	Tues., Aug. 23 - Mon., Aug. 29
Spring/Summer Term III ends	Mon., Aug. 29, 1983

Fall — Term I, 1983

University year begins	Tues., Aug. 30, 1983
Term begins	Tues., Aug. 30
Final registration	Mon., Aug. 29 - Fri., Sept. 2
Last day for filing degree applications	Fri., Sept. 2
Labor Day Recess	Mon., Sept. 5
Classes begin	Tues., Sept. 6
Priority registration for Winter Term	Mon., Oct. 17 - Fri., Nov. 4
* Day scheduled as Thursday	Tues., Nov. 22
* Day scheduled as Friday	Wed., Nov. 23
Thanksgiving Day Recess	Thurs., Fri., Sat., Nov. 24, 25, 26
Add-drop period for students who priority registered	Mon., Nov. 28 - Thurs., Dec. 1
Classes end	Wed., Dec. 14
Commencement	Thurs., Dec. 15
Examination week	Thurs., Dec. 15 - Wed., Dec. 21
Term ends	Sat., Dec. 31, 1983

Winter — Term II, 1984

Term begins	Sun., Jan. 1, 1984
Final registration	Mon., Jan. 2 - Fri., Jan. 6
Last day for filing degree applications	Fri., Jan. 6
Classes begin	Mon., Jan. 9
Priority registration for Spring/Summer Term	Mon., Feb. 27 - Fri., Mar. 9
Spring Recess	Mon., March 12 - Sat., March 17
Add-drop period for students who priority registered	Mon., April 2 - Thurs., April 5
Classes end	Sat., April 21
Study days	Mon., Tues., April 23, 24
Examination week	Wed., April 25 - Tues., May 1
Term ends	Wed., May 2
Commencement	Thurs., May 3, 1984

* An equal number of each day of the week is needed for some of the laboratory courses. To make up for days lost for Thanksgiving Day Recess, these days have been designated as days scheduled for classes which normally meet on Thursday or Friday.

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 an increasing usefulness to society. At the graduate level, especially at the doctoral level, the University is concerned with developing 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 programs 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.

Wayne State has more than 135,000 living alumni. More than 105,000 of them live in the state and more than 97,000 live in the Detroit. Over thirty 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 the 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

Over 100 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. (For maps, see pages 630-632.)

The School of Medicine and its affiliated teaching hospitals and clinics 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 facilities for the College of Pharmacy and Allied Health Professions. Certain smaller instructional and service units are located in other parts of the metropolitan area.

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, colleges and divisions 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
- Graduate School
- Division of Health and Physical Education
- Law School
- College of Liberal Arts
- College of Lifelong Learning
- School of Medicine
- 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 chairperson (or head). Academic standards, curricular development, course revision 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 and approval by the Provost and by the President and, whenever they involve major educational policy decisions, by the University Council.

The Graduate School is the central unit for the supervision and encouragement of graduate work in the University and has basic responsibility for the improvement and review 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 college and school and, where appropriate, by the departments.

All degrees are granted by the University through the colleges and schools, except that the Dean of 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, 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 forty specific programs and courses are presented 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 Education¹
- Center for Black Studies
- Center for Peace and Conflict Studies
- Center for the Administration of Justice
- Institute of Labor and Industrial Relations²
- Institute of Gerontology²



¹ Sponsored jointly with the University of Michigan and the Michigan Bar Association.

² 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 non-refundable 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 completed application, including transcripts and any other records necessary for admissions consideration, must be in the Office of Admissions before final registration for the desired semester to ensure adequate time for processing. Applications received during final registration 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 of the term desired.
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 high schools can qualify for admission in two ways: (1) admission is assured if the cumulative overall high school grade point average is 2.75 (B-) or above and (2) admission is granted if the high school grade point average is between 2.00 and 2.74, providing Scholastic Aptitude Tests (SAT) scores of at least 450 Verbal and 400 Mathematics or American College Testing (ACT) standard composite score of at least 20 are achieved.
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.

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 34.

Recommended High School Preparation

See individual schools and colleges for specific high school recommendations.

Advanced Placement Tests

Superior performance in the College 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, art history, studio art, biology, chemistry, classics, English, French, German, Spanish, mathematics, music literature, music theory 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 Liberal Arts Advising, 262 Mackenzie Hall.

Transfer Admission

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.

(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 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.

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.

School of Business Administration: 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.

College of Education, College of Liberal Arts: After a total of ninety-six quarter credits or sixty-four semester 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.

College Examination Program

The College 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 the College Board, 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/her ability to perceive relationships and his/her 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.

For information on credit by special examination, see page 15.

Special Requirements and Professional Admission

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 39; *Education* — page 61; *Engineering* — page 117; *Engineering Technology* — page 164; *Lifelong Learning* — page 429; *Nursing* — page 481; *Pharmacy and Allied Health Professions* — pages 499 and 518; *Social Work* — page 543; *Department of Mortuary Science* — page 564.

Post-Bachelor Admission

Holders of bachelor's degrees from accredited institutions who wish to elect only courses open to undergraduate students (numbered below 700) 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

This university is authorized under Federal law to enroll non-immigrant alien 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 School, see page 19.

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/she report to the college of his/her choice for any special instructions regarding his/her 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

Wayne State University is an equal opportunity/affirmative action institution. It is the policy of the University that no person shall be discriminated against in employment, educational programs and privileges, admissions, or any other activities or operations on the basis of race, sex, color, religion, national origin, age, marital status or handicap. Wayne State University complies with the Titles VI and VII of the Civil Rights Act of 1964, Executive Order 11246 as Amended, Title IX of the Education Amendments of 1972, Section 504 of the Rehabilitation Act of 1973, the Age Discrimination Act of 1975 and Michigan Public Act 453. Inquiries regarding equal opportunity and affirmative action policies or complaints may be directed to the Assistant Vice President for Neighborhood Relations, Office of Equal Opportunity and Neighborhood Relations, 1004 Mackenzie Hall, Wayne State University, Detroit, Michigan 48202; telephone (313) 577-2280.

Non-Discrimination for the Handicapped

In accordance with federal requirements of the Rehabilitation Act of 1973, there shall be no discrimination on the basis of handicap in Wayne State University's programs, operations and activities, in the hiring, terms and conditions or privileges of employment or any matter directly or indirectly related to such employment, or in the admission, education and treatment of students. See page 34 for description of services extended to handicapped students.

Fees

Listed below are fees per semester in effect at the time of publication of this Bulletin. 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 term. In accordance with action of the Board of Governors, a portion of these fees is used for operation of the Student Center Building.

Undergraduate Fees

Freshmen and Sophomores:

Resident (1-12 credits): \$40.00 plus \$53.00 per credit
Resident (13 or more credits):\$53.00 per credit
Non-resident (1-12 credits): \$40.00 plus \$117.00 per credit
Non-resident (13 or more credits): \$117.00 per credit

Juniors, Seniors and Post-Bachelors:

Resident: \$40.00 plus \$62.00 per credit
Non-Resident: \$40.00 plus \$145.00 per credit

Graduate Fees

Resident: \$40.00 plus \$77.00 per credit
Non-resident: \$40.00 plus \$165.00 per credit

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/she must take to complete his/her registration and of any liability he/she has incurred. The applicable Late Registration Fee will be assessed when the check is replaced with a valid payment.

Master Charge and Visa 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 sixth and tenth weeks of classes. A late payment assessment of \$25.00 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..... \$25.00
thereafter..... 50.00

Course Materials Fees: A course materials fee may be assessed for registration in certain courses 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 \$10.00 per credit; however, additional fees may be authorized by the Registrar in exceptional cases to cover costs for administering the examination.

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. 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.

The Division of Health and Physical Education will rent a gymnasium uniform and/or lock and storage basket to any student who desires this privilege. For some activities, there is additional charge for equipment rental or use of special facilities. Students may refer to the official University *Schedule of Classes* for rental fees and other charges.

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, registration for a subsequent term 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

The following regulations and review procedures are established by Wayne State University for University 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 these 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 term for which resident classification is being sought, save for temporary absences as defined in paragraph two below.

2. For the purposes 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

¹ Significant exceptions in fee policy or in fees are made by the Law School (see page 200), the School of Medicine (see page 446) and the School of Social Work (see page 548). See their respective sections for details.

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 credits, or in graduate school for more than six credits, or in Law School for more than twelve credits 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 or 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 resident 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 a refugee visa or 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 term 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 the right to appeal from the administrative classification.

(d) The Office of the General Counsel shall review the appeal and render a decision. A student may appeal an adverse decision by filing a written notice of appeal with the Office of the General Counsel within fifteen days from the date of the decision. Failure to file a written notice of appeal with the Office of the General Counsel shall constitute a waiver of the right to appeal to the President or his designee. While the student has the right to consult the University Ombudsman at any time, the student may particularly want to utilize the Ombudsman's services at this point in the review procedure.

(e) After a student appeal, the President or his designee shall review the student's appeal on the record and render a final decision.

(f) If an 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 as 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 General 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 except for such erroneous classification and shall be subject also to appropriate discipline in accordance with University policies. If it is determined that there is no such concealment of facts by the student, fees shall be adjusted only for current and future terms.

4. Classification Date

These procedures shall become effective November 9, 1979.

Transcript Request Policy

A fee of \$2.00 is charged for each *official* transcript. A \$1.00 fee is charged for each *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 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 term of attendance at Wayne, name and address of where the transcript is to be sent and a check or money order made payable to Wayne State University for each transcript.

Requests for official transcripts will not be honored if the student or alumnus has an outstanding financial obligation to the University.

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 term.

The forty dollar registration fee is not refundable. 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.

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

	<i>Amount of Refund</i>
For Classes Meeting 28 or More Weeks	
Withdrawal through the end of the sixth week of classes.....	100% less \$40.00
Withdrawal during the seventh through twelfth week of classes.....	60% less \$40.00
Thereafter.....	No Refund
For Classes Meeting 16-27 Weeks	
Withdrawal through the end of the third week of classes.....	100% less \$40.00
Withdrawal during the fourth through sixth week of classes.....	60% less \$40.00
Thereafter.....	No Refund
For Classes Meeting 9-15 Weeks	
Withdrawal through the end of the second week of classes.....	100% less \$40.00
Withdrawal during the third and fourth week of classes.....	60% less \$40.00
Thereafter.....	No Refund
For Classes Meeting 4-8 Weeks	
Withdrawal through the end of the first week of classes.....	100% less \$40.00
Withdrawal during the second week of classes.....	60% less \$40.00
Thereafter.....	No Refund

For Classes Meeting Less Than 4 Weeks

Withdrawal on or before the first day of the class.....	100% less \$40.00
Withdrawal on the second day of the class.....	60% less \$40.00
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/her 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/her case reviewed must make application and submit documentation at the Office of the 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.*

Office of Scholarships and Financial Aids

222 Administrative Services Building; 577-3378

The Office of Scholarships and Financial Aids assists the student and parents in meeting traditional educational expenses which include tuition and fees, books, room, board and transportation. Undergraduate and graduate students are encouraged to make early application in order to be considered for available federal, state and institutional aid. Requests for assistance are reviewed on the basis of demonstrated financial need, academic merit and available funds.

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 level of expected family contribution towards the cost of the student's education and, for scholarships, upon the student's overall honor point average. In addition to the parental contribution, the student also is expected to provide support through use of savings from summer earnings or part-time work during the academic year.

Students who do not receive financial assistance from their parents may apply and qualify for aid as Independent Students.

Graduate students seeking scholarships or fellowships should consult the Graduate School; those seeking assistantships should consult their department chairperson.

Law students should apply directly to the Scholarships and Financial Aids Office of the Law School located in room 317, Law School. Medical School students should apply directly to the School of Medicine Financial Aids Office located in room 1112, Scott Hall.

Part-time on-campus work opportunities may be pursued by contacting the Placement Office located in Mackenzie Hall.

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.

University Scholarships and Awards: The awards listed below are offered on the basis of scholarship and/or financial need. Contact the Office of Scholarships and Financial Aids for complete information on the scope and stipulations of these awards.

AWARDS BASED ON NEED

Barba Family Scholarship

Abraham Borman Scholarship

Sam and Mollie Burtman Scholarship

Faculty Wives Club Award

Albert Feigenson Scholarship

—in liberal arts, English literature, or music

Herman and Perry Feigenson Scholarship in Liberal Arts

Alice and Henry Feldman Scholarship

Alan J. Guttenberg Scholarship

Wilhelmina Harrison Memorial Scholarship

David Mackenzie Scholarship

Hans Matthias Scholarship

—three \$500 scholarships

George A. Miller Scholarship

Louise Tuller Miller Scholarship

Claude L. Mitchell and Family Scholarship

Henry M. Selden Scholarship

Anna Schumaker Memorial Scholarship

Mark Anthony Schoenith Scholarship

Mabel Muriel Smith Scholarship

OTHER AWARDS

Warren E. Bow Memorial Scholarship

—for graduates of Detroit Public High Schools

Commercial Credit Co. Foundation

—for students in business, accounting, engineering, data processing or economics

Perry Deakin Athletic Scholarship

Eben L. Dunn Scholarship

John Helfman Nursing Scholarship

Alvin Macauley Scholarship

Edmund Ruffin Scholarship

Wayne State Fund

George Zambrzycki Memorial Scholarship

—in art or art history

Academic Procedures

Each student, except those in the annual medical program, is required to register at the beginning of each term of attendance 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-bachelor.' 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 satisfactorily completed 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 103
2. History 204 and 205
3. History 516 and 517
4. Political Science 101
5. Political Science 103
6. Political Science 201 and 202
7. Social Science 191 and 192
8. General Social Science (College of Lifelong Learning). Any six of the following courses: GSS 201, 202, 203, 231, 232, 233, 271, 272, 273

Normal Program Load

A full-time undergraduate student is one who is enrolled for twelve or more credits during a semester. The definition of what constitutes a normal course load will vary depending upon the requirement of each program. In general, for completion of undergraduate degree requirements in four years, full-time students should average 15-16 credits each semester during the academic year.

Auditing Courses

To audit a course, a student indicates, at the time of registration for the course, that he/she does not wish to receive credit. His/her 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 semester. 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 School does not encourage students to audit graduate courses.

Dual Elections

With the Graduate School: Highly qualified undergraduate students may, under special circumstances, take a 700 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 Graduate School before the first meeting of the course. The signed petition must be made available at registration.

Under the Senior Rule: A student in his/her senior year, who has a good academic record and who desires to earn a limited number of graduate credits, may receive, in his/her final semester, a temporary admission for one semester only to the Graduate School. For further information, see the Graduate School Section of this bulletin, page 19.

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/her program but is not available in his/her home institution. The student must have written approval of the department chairperson in his/her major area in his/her own college and also the approval of the dean of his/her 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-bachelor status repeats a course originally taken in post-bachelor status, then rules 1, 2 and 3, as cited above, shall apply. If a post-bachelor status student repeats a course originally taken under regular undergraduate status, the repetition will in no way modify the earlier attempt.

Graduate Students: A graduate department or equivalent academic administrative unit may, if it wishes, allow a student to petition to repeat a graduate course in which a grade of B-minus or lower is received. Only two such courses may be repeated during the student's graduate studies at Wayne State. Permission to repeat a course must be obtained from the Graduate Officer (for Master's students) or the Departmental Graduate Committee (for Ph.D. students) as well as the Dean of the Graduate School (for both Master's and Ph.D. students) before registration for said course takes place. The original grade for the course will remain on the student's transcript, but only the grade

received in repetition of the course will be used in computation of the student's honor point average for the degree program. Students will not receive University financial aid for repetition of courses.

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 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 the last day of the fourth week of fifteen week classes, any student may withdraw from any class by notifying the Registration Office in writing. He/she 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/she wishes to drop. The notice must be received in the Registration Office by the last day of the fourth week of classes. It is strongly recommended that the student consult with his/her instructor about 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 the last day of the fourth week of classes, that course will not appear on his/her record. The record of the student who has formally withdrawn from all of his/her courses by that date will bear the notation 'complete withdrawal' for the semester. After Friday of the fourth 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 fourth week and through the Friday of the twelfth week, he must seek the instructor's written approval. Notice of withdrawal reaching the Registration Office after Friday of the fourth week of classes, without the instructor's signature, will not be accepted. A student who wishes to withdraw from a course or courses after Friday of the twelfth week must obtain the written approval of his/her instructor and his/her dean.

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

For additional information see Marks, page 16 and the section on 'Fees', page 12.

School of Business Administration: 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.

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

Registering and Adding: Through the last day of the fourth week of fifteen-week classes, any student can register or add a course section. He/she must complete and sign an Add/Drop form, including the instructor's written permission, have it dated and signed in accordance with the policies of the College and limitation(s) of the course section, and present it at the Registration Office by the last day of the fourth week of classes.

Credit by Special Examination

Upon the recommendation of the department chairperson and with the written approval of the appropriate college or school office, a student may earn credit in a course in which he/she 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 sixteen credits may be earned in any one subject.
2. Not more than thirty-two 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 semester 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 10.

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 semester in which the student has registered. Final grades are recorded under the following system.

- 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
unofficial withdrawal 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.

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.

M indicates a marginal pass. It is 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/her record.

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 students whose work suffers as a result of conditions beyond their 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.

Not applicable for graduate credit.

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 14 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 semester 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 chairperson 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 semester 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 the 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 semester (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 14.

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/her 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 semester with the consent of an adviser, but he/she 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.

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 three semesters (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 per week or its approved equivalent requiring a minimum of two hours of preparation per week carried through a semester. A credit in other modes of instruction should be made as consistent as possible with the above definition.

Laboratory: A three-hour laboratory period is normally 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, page 16) 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:

20 (honor points) divided by 7 (credits attempted) = 2.85, 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 14 on 'Repeating Courses'.

At the graduate level: See page 14 (Repeating Courses) for the policy on honor points for repeated courses.

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

* 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.

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 29 credits, inclusive
Sophomore	30 to 59 credits, inclusive
Junior	60 to 89 credits, inclusive
Senior	90 credits or above

School of Business Administration

Freshman	0 to 30 credits, inclusive
Sophomore	32 to 63 credits, inclusive
Junior	64 to 95 credits, inclusive
Senior	96 credits or above

College of Education

Freshman	0 to 31 credits, inclusive
Sophomore	31 to 61 credits, inclusive
Junior	62 to 93 credits, inclusive
Senior	94 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 admission 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 Family Education Rights and 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 semester 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 commencement period in which the student did not graduate, a new application is necessary.

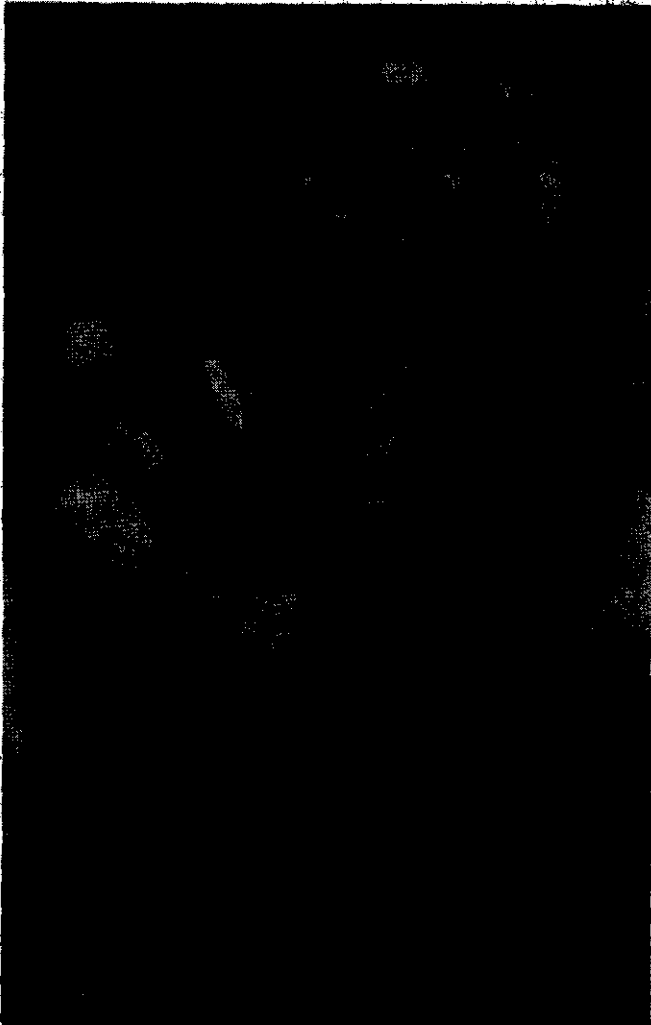
Student Rights and Responsibilities

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 Students' 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 College's final decision is based upon the evaluation of a student's academic performance and when review procedures available to him/her within the College have been exhausted, the student may request the Provost to review that decision on the record. A written request for Provostial review must be made within thirty days of the sending of the College's final decision to the address provided by the student in the College's review procedure.



GRADUATE SCHOOL

ADMISSION

Regular Admission*

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 elected. *These criteria are subject to standards set by the individual colleges and schools, which reserve the right to revise or amend their entrance requirements beyond the minimal requirements of the University.*

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 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 60 semester credits) of his/her undergraduate course work and if he/she 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/her 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/her honor point average entitles him/her to probationary status only.

Conditional Admission

In most departments (see below for variants), conditional admission may be authorized if an applicant's honor point average is between 2.25 and 2.6 or if his/her 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, extra-scholastic qualifications and reasons for pursuing graduate study and have recommended, *in writing*, his/her admission to the Graduate School.

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

Application Dates

The Office for Graduate Admissions (5980 Cass Avenue, Room 102, (313) 577-3596) will make every effort to process applications in time for the semester of the student's choice. However, only applications in by the last recommended dates shown below are ensured a decision before the semester starts. Unless an application and all supporting materials are received by the date indicated, there may not be adequate time to complete consideration for the desired term.

Term	Classes Begin	Date
Fall	Early September	July 1
Winter	Early January	November 1
Spring	Mid May	March 15

For international students, the application form and all transcripts and documents must be on file in the Graduate Admissions Office at least four months before the start of the term in which the applicant plans to begin graduate studies.

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

GRADUATE NON-MATRICULATED ADMISSION*

A student who is entering the Graduate School 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-matriculated basis. One must file an *Application for Graduate Admission* but is not permitted to record a major. In most instances, a non-matriculated student may register for any courses for which he/she has the necessary preparation. Depending on the applicant's highest previous degree, he/she 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.

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

* Applicants are advised that there exists an undergraduate 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.

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.

The applicant for a non-matriculated graduate classification is cautioned that only one semester of full-time graduate study, or part-time registrations *not to exceed nine credits*, are normally permitted in this classification. Beyond these limits, registration as a non-matriculated student requires the approval of the Graduate Officer of the student's college. *Not more than nine credits, subject to the approval of the Graduate Officer, may be applied at a later date toward the resident and credit hour requirements for either the master's or Ph.D. degree.* For the Ed.D. degree, credit earned beyond the nine credit 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-matriculated admission classifications if he/she has any interest in earning a degree. There is no assurance that credits earned while holding a non-matriculated classification 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/she should apply to the College Graduate Officer for a 'Change of Status' before completing nine 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 consideration. A guest admission is valid for only one semester and must be renewed with each subsequent registration. Admission as a Graduate Guest student does not constitute permission to register as a degree applicant. Guest students are required to pay the non-refundable graduate application fee of \$15.00 EACH TIME THEY APPLY.

Senior Rule Admission: In their last undergraduate semester, 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 semester of baccalaureate degree work.

Students who qualify and are recommended by the department will be given a 'temporary' admission to the Graduate School for one semester. 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 University 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 semester 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 semester 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 one of their last two semesters of their fifth year (not to exceed six graduate credits) under Senior Rule status.

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 Graduate School.

International Students

Students from other countries must contact the Office for Graduate Admissions, 5980 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 \$9,500 per academic year (two semesters or nine months) for tuition, supplies and living expenses; and (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 bilingual 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 Director of the University's English Language Institute 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 student keeping informed of all rules, regulations and requirements and complying with all official procedures of the Graduate School, 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/her standing as a graduate student, the student should consult with his/her adviser. The primary responsibility of keeping 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/her 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

Generally, courses numbered 500 and above are considered graduate level; in some departments, certain 500- and 600-level courses are not permitted for graduate credit and are so designated. Courses numbered 700 and above are open only to graduate students.

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 completing one's course requirements. Before a Ph.D. student may register in directed study, he/she must complete the Ph.D. directed study petition form and obtain written permission of the Graduate School. Master's students must obtain the written permission of their college Graduate Officer.

Law School: In addition to the above approvals, graduate students must obtain the written 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 *Schedule of Classes* which may be obtained at the Registration Office.

Graduate Credits

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/her program. Minor courses should be related to the major and eight or more credits elected in any one outside field will constitute a minor.

Transfer of Credits—Graduate

In work toward the master's degree, credit beyond the twenty-four 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 Graduate School, approved by his/her adviser and Departmental Graduate Committee Chairperson, 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-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 thirty residence credits (excluding dissertation direction). Courses accepted for transfer credit from outside or within Wayne State University cannot have provided credit toward a prior degree except when the master's or another pre-doctoral certificate or degree is applied to the doctoral degree.

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 six semester credits (two courses) may be transferred from other graduate institutions.

College of Engineering: A maximum of six semester credits may be transferred toward a Master's Degree from other institutions.

Maximum Credit Load

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

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/her *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 at least one credit of essay, thesis, or dissertation direction during each semester that he/she uses facilities or receives advisory services until such time as the student:

- (a) completes the requirements for the degree;
- (b) declares him/herself no longer a candidate for the degree; or
- (c) exceeds the time limit allotted for securing the degree.

For these credits, 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, eight credits for a thesis, or thirty credits for a dissertation. A mark of Z (Auditor) will be recorded on the student's record for 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 Graduate Grades, page 15.

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 School.
2. Academic work submitted by a graduate student for graduate credit is assumed to be of his/her own creation, and, if found not to be, will constitute cause for the student's dismissal from the School.

Academic Appeals

In matters where the Graduate School's final decision is based upon the evaluation of a student's academic performance and when review procedures available to him/her within the School have been exhausted, the student may request the Provost to review that decision on the record. A written request for Provostial review must be made within thirty days of the sending of the School's final decision to the address provided by the student in the Division's review procedure.

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.

Michigan Intercollegiate Graduate Studies (MIGS) Program

The Michigan Intercollegiate Graduate Studies (MIGS) Program enables graduate students of Michigan public institutions offering graduate degree programs to take advantage of educational opportunities at other Michigan public institutions offering graduate degrees. Any graduate student in good standing in a master's, specialist, or doctoral program at a member institution is eligible to participate with approval of the appropriate academic unit. Students on a MIGS enrollment pay tuition and other fees at the host institution for the services rendered. All credits earned under a MIGS enrollment are accepted by a student's home institution as if offered by that institution. This type of enrollment is limited to one term for master's or specialist degree students, or two terms for doctoral degree students. Students interested in this program should contact the Graduate Admissions Office for further information and instructions.

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 semester—i.e., less than 7 1/2 weeks. Such courses offered for graduate credit will provide for at least fifteen 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 fifteen-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 provide for a minimum of twenty-five 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, they are offered for credit only infrequently and enroll only those students for whose academic programs they would be directly relevant. 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 one credit hour 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 four credits earned in any combination of WIC and Travel-Study courses. This limitation applies to the total of a graduate student's work at Wayne, so that if four credits are applied toward the Master's degree, none may be applied toward a subsequent specialist, second Master's, or a 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.

All Short-Term, Workshop-Institute-Conference, and Travel-Study courses offered for graduate credit must be proposed, approved and authorized well in advance via the appropriate form (obtainable from the Graduate School Office). After an initial authorization, courses to be repeated with no substantial change may be petitioned and approved by memorandum on the basis of the original on file.

Degree Requirements

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

MASTER'S DEGREE

The minimum Graduate School requirement for the master's degree is thirty credits, at least twenty-four 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 School minimum, their requirements take precedence.* The Graduate School 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 thirty credits, including a total of eight credits for a thesis.

PLAN B requires a total of thirty credits, including a minimum of three credits for an essay.

PLAN C requires a total of thirty 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 eight to twelve graduate credits have been earned. The applicant shall be advanced to the rank of 'Candidate' upon approval of the *Plan of Work* by the College Graduate Office. In most colleges candidacy must be authorized by the time twelve 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 semester 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.

Essays

Under Plan B, some departments require the completion of an essay prior to the granting of a master's degree. The essay 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.

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/she meets all Graduate School 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 Chairperson of the Department or the Chairperson 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/her program the doctoral applicant, with the assistance of his/her adviser, plans a sequence of studies. This *Plan of Work*, approved by the adviser and the Departmental Graduate Committee Chairperson, should be filed with the Graduate School before the student has completed forty 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 90 graduate credits beyond the baccalaureate degree are required for completion of the Ph.D. program. Normally, a Ph.D. program will consist of:

- (1) twenty credits of coursework in the major;
- (2) thirty credits of dissertation direction; and
- (3) forty 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 eight or more credits must be elected outside the major department but in a related field. The decision concerning whether the student's *Plan or Work* will include one minor or two is made by the department.

The total Ph.D. program must include thirty credits, excluding dissertation direction, in courses open only to graduate students (i.e., 700 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 (999) credit until he/she has fulfilled all requirements for advancement to Ph.D. candidacy.

In some cases, with the approval of one's adviser and the Graduate School, a Ph.D. applicant may be allowed to register for up to (but not more than) ten 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/her research, the Ph.D. student must prepare in quadruplicate the Graduate School's *Doctoral Dissertation Outline and Record of Approval* form. This form is approved by the student's dissertation advisory committee and the Chairperson of the Departmental Graduate Committee. Following departmental approval, all four copies are forwarded to the Graduate School 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/her adviser. If the adviser approves the petition, he/she will forward it, along with his/her recommendation, to the Chairperson of the Departmental Graduate Committee. If approved by the department, the petition will be forwarded to the Graduate School. All exceptions must ultimately be approved by the Graduate School.

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 semester 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 thirty-two 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 ten 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 ten. *Time extensions beyond these limitations are authorized only for conditions which are clearly beyond the student's control.*

Candidacy

A Ph.D. Applicant will be advanced to the rank of Ph.D. Candidate when 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.

Ph.D. Foreign Language Requirement

The Ph.D. Foreign Language Requirement is a matter of departmental option. Some Ph.D. granting departments have retained the former language requirement intact, some departments have 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 shall 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 two successive semesters after admission as a Ph.D. applicant. At least six credits in each of the two semesters must be taken in course work. The remaining four 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 two successive semesters.

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 two successive semesters 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 stipulate that the student must elect at least thirty credits in graduate work exclusive of dissertation direction at the University.

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 of the Graduate School. 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 School requirements established for all Ph.D. programs, the student petitioning for such a program must constantly be advised that achieving 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, 352 Mackenzie Hall.

Adviser and Advisory Committees

The *Adviser* represents the Department in helping plan the student's program; additionally, the adviser shall sign the student's *Program Request*, approve the *Plan of Work*, recommend candidacy, guide the student's research, approve the essay or thesis, serve on the Oral Qualifying Examination Committee and doctoral dissertation committee, arrange for the qualifying examinations and Dissertation Public Lecture Presentation-Defense, and certify to the Graduate School that degree requirements have been fulfilled.

The *Qualifying Examining Committee* must consist minimally of three major departmental members. An extra-departmental member may be added at the discretion of the department. In this latter instance, the department is encouraged to select a person from the student's minor/cognate area. The membership of this committee may not normally be changed until the qualifying examinations (written and oral) have been successfully passed.

The *Dissertation Committee* shall consist minimally of three major departmental members plus one extra-departmental member. The expertise of the extra-departmental member must be appropriate to the student's dissertation work. In the case of co-advisers from the same department the number of major departmental members shall be increased to four.

After Graduate School approval, any changes in the committee structure shall require written justification.

Graduate Examiner

The Graduate Examiner is appointed by the Graduate School and serves as the representative of the Graduate Council as presiding officer at both the Oral Qualifying Examination and the Dissertation Public Lecture Presentation. The Graduate Examiner must be a tenured member of the Graduate Faculty in a department other than that of the student's major. The Graduate Examiner may not be a member of the student's dissertation committee.

Qualifying Examinations

Before taking the written and oral qualifying examinations, the student must have filed a *Plan of Work* with the Graduate School. The qualifying examination shall cover the applicant's major and minor areas, and such other related matters as the qualifying examining committee may prescribe.

The oral qualifying examination shall be conducted by the doctoral committee within thirty days after the written examination has been passed. Upon completion of the written part of the Qualifying Examination and at least twenty-one days prior to the Oral Examination, the department shall notify the Graduate School of the arrangements for the Oral Qualifying Examination (via the Qualifying Examination Report Form) and submit the names of the members of the examining committee for approval. The Graduate School shall then appoint a Graduate Examiner for the committee. The Graduate Examiner is the presiding officer at the Oral Qualifying Examination and is responsible for the conduct of the examination. The Oral Qualifying Examination shall be conducted by the examining committee within thirty days after the written examination has been passed. If the examining committee determines that the applicant has not passed 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. If the Graduate Examiner certifies that the student has failed the oral part of the examination, a second examination may not be held until at least one semester has elapsed, but must be held within one calendar year

following the first examination. The second examination shall be considered final.

Dissertation Public Lecture Presentation-Defense

The dissertation format and appearance must be acceptable to the Graduate School before the Dissertation Public Lecture Presentation-Defense shall be authorized. Additionally, each Committee member must have certified, in writing, that the dissertation has been read and approved for a Public Lecture Presentation-Defense.

The Graduate Examiner is the presiding officer at the Dissertation Public Lecture Presentation-Defense and is responsible for the conduct of the examination. The dissertation shall be formally presented in a lecture in which the candidate shall state the methodology, research, and results of the investigation. Conducted by the Candidates's committee and presided over by the Graduate Examiner, 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. The Dissertation Public Lecture Presentation is open to the general University community.

Two final signed copies of the dissertation are to be submitted to the Graduate School within ten days after the Dissertation Public Lecture Presentation-Defense. The Ph.D. degree will be certified only upon receipt of these two copies.

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 semester in which he/she 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 term 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 Commencement Office 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.

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.

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/she has derived from his/her 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 School notification is required.

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

Abstracts: In addition to the dissertation, each doctoral student must prepare two copies of an abstract, which *must not exceed 350 words*. At the top of the first page of the abstract, the following must be recorded:

NAME:	APPROVED BY:
MAJOR:	SIGNATURE:
DEGREE:	DATE OF APPROVAL:
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/her approval before delivery of the abstract to the Graduate School.

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 the adviser requires personal copies, they must be in addition to the above number. Thesis and dissertation copies are to be submitted for binding to the Graduate School. Personal copies will not be bound by the Graduate School. 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 Graduate School and must not be punched or placed in binders.*

Title Page Format

(TITLE OF THESIS OR DISSERTATION)	
by	
(Name of person submitting manuscript)	
(THESIS OR DISSERTATION)	
Submitted to the Graduate School 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.*

Binding Charges: A charge is assessed for the University copies to be bound. The assessment is paid at the Graduate School or the University Cashier's Office. Checks are to be made payable to Wayne State University.

Dissertation Publication Plan: To insure publication, doctoral candidates are assessed a fee by the Graduate School and 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 Graduate School.

Dissertation Copyrighting Charge: Copyright service provided by University Microfilms, Inc., is available upon request. The candidate shall pay the amount necessary to cover the cost of copyrighting.

Typing Services: The Graduate School maintains a roster of typists and typing services. Upon request of a student, the name or names of typists residing in his/her 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 School 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 Graduate School for further information.

Thomas C. Rumble 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/her area of specialization. The basic stipend for each fellow will be \$4,500 per academic year, plus twelve credits of tuition coverage per semester, and inclusion in the University Insurance program. An additional allowance for dependent children is provided. Application forms are available from the Graduate School 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 Assistantships: A number of Graduate Teaching Assistantships and Graduate Research Assistantships are available which provide stipends and partial tuition payment. Interested students are advised to contact the chairperson of the department in which they intend to major.

Graduate-Professional Scholarships: Each year the University awards a number of competitive tuition scholarships for students in graduate degree programs. Application forms are available from the Graduate School.

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.

Competition Deadline	Duration of Scholarship
April 1	Fall, Winter
July 15	Fall, Winter
December 1	Winter

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: The 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 to the Chairperson of the department in which the student desires to major.

Date of Acceptance or 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/she indicates his/her acceptance before April 15th, will have complete freedom through April 15 to submit, in writing, a resignation of his/her*

appointment in order to accept another graduate appointment. However, an acceptance given or left in force after April 15th commits him/her not to accept another appointment without first obtaining formal release for that purpose.

Applications and information for the following programs may be obtained by contacting the Office of Scholarships and Financial Aids, Room 222, Administrative Services Building.

Board of Governors Grant-in-Aid: Graduate students with exceptional financial need, who are not otherwise eligible for scholarship assistance may qualify for grants ranging from \$150 to full tuition.

College Work-Study Program: Employment on-campus and in public and private non-profit agencies is available to eligible graduate students able to demonstrate financial need. Work assignments are generally related to the student's interest, academic major and professional goals. Earnings are intended specifically to assist in meeting educational expenses and may range from \$500 to \$2,500 a year.

National Direct Student Loan Program: The University participates in the Federal National Direct Student Loan Program amended by the Higher Education Act of 1972. These loans are available to eligible graduate students demonstrating financial need. Loans may range from \$150 to \$2,500 per academic year. Repayment and simple 3% interest charges are initiated nine months after graduation or termination of academic effort.

Federally Insured or Guaranteed Student Loans: Loans for eligible students may range up to \$5,000 and must be arranged through commercial lending institutions such as banks, credit unions, savings and loan associations; repayment and simple 7% interest charges are initiated nine months after graduation or termination of academic effort. Federal interest subsidy during the student's period of enrollment is available for qualified applicants.

Michigan State Direct Student Loan Program: This is an alternate source of loan assistance for eligible students unable to secure traditional loans through a commercial lender. These loans may assist in meeting up to half the cost of the student's educational expense and are need-based.

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

major	degree
Business Administration.....	M
<i>concentrations</i>	
Business Economics	Management
Finance	Managerial Accounting
Financial Accounting	Marketing
Industrial Relations/Personnel	Operations Management

College of Education

major	degree
Adult Learning.....	M
Art Education.....	M
Bilingual/Bicultural 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 Education.....	D
Humanities	
Physical Science	
Social Science	
Counseling.....	M,S,D
Health Occupations Education.....	M
Higher Education.....	D
History and Philosophy of Education.....	M,D
Instructional Technology.....	M,S,D
Interdisciplinary.....	D
Library Science.....	M,S
Mathematics Education.....	M,S
Physical Education.....	M
Pre-School and Parent Education.....	M
Reading.....	S,D
Recreation and Park Services.....	M
School and Community Psychology.....	M,S
Science Education.....	M,S
Secondary Administration and Supervision.....	S,D
Secondary Curriculum and Instruction.....	S
Secondary School	
English Education.....	M,S
Foreign Language.....	M
Reading.....	M
Social Studies Education.....	M,S
Special Education.....	M,S,D
Sports Administration.....	M
Teacher Education.....	D
Vocational and Applied Arts Education	
Business Education.....	M

Distributive Education.....	M
Family Life Education.....	M
Health Occupations Education.....	M
Industrial Education.....	M
Vocational and Applied Arts Education.....	S,D
Vocational Rehabilitation Counseling.....	M,S

College of Engineering

major	degree
Chemical Engineering.....	M,D
Civil Engineering.....	M,D
Computer Engineering.....	M,D
Electrical Engineering.....	M,D
Mechanical Engineering.....	M,D
Industrial Engineering.....	M,D
Metallurgical Engineering.....	M,D
Operations Research.....	M,D

Graduate School

major	degree
Industrial Relations	
Interdisciplinary.....	M

Law School

major	degree
Corporation and Financial Law.....	M
Labor Law.....	M
Taxation.....	M

College of Liberal Arts

major	degree
Anthropology.....	M,D
Art.....	M
Art History.....	M
Audiology.....	M,D
Biology.....	M,D
Chemistry.....	M,D
Classics.....	M
Comparative Literature.....	M
Computer Science.....	M
Criminal Justice.....	M
East European Studies.....	M
Economics.....	M,D
English.....	M,D
Family and Consumer Resources.....	M
French.....	M
Geography.....	M
Geology.....	M
German.....	M
History.....	M,D
Italian.....	M
Latin.....	M
Linguistics.....	M
Mathematics.....	M,D
Applied Mathematics.....	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
Speech Communication, Theatre, Journalism	M,D
Urban Planning	M

School of Medicine

major	degree
Anatomy	M,D*
Audiology	M,D†
Biochemistry	M,D*
Community Health Services	M
Microbiology	M,D*
Occupational and Environmental Health	M
Pathology	D
Pharmacology	M,D*
Physiology	M,D*
Psychiatry	M
Radiological Health	M
Radiological Physics	M

College of Nursing

major	degree
Primary Care Nursing—Adult	M
Advanced Medical Surgical Nursing	M
Adult Psychiatric—Mental Health Nursing	M
Child & Adolescent Psychiatric—Mental Health Nursing	M
Community Health Nursing	M
Institutional Epidemiology	M
Nursing Care of Children and Adolescents	M
Advanced Maternity Nursing	M
Nursing	D

College of Pharmacy and Allied Health Professions

major	degree
Faculty of Pharmacy	
Hospital Pharmacy	M
Pharmaceutics	M, Pharm.D,D
Pharmaceutical Administration	M,D
Medicinal Chemistry	M,D
Pharmacology	M,D
Faculty of Allied Health Professions	
Anesthesia	M
Medical Technology	M
Occupational Therapy	M

School of Social Work

	degree
Social Work	M

Methods of Social Work practice taught with the following foci:

Social Case Work	Social Work Practice
Social Group Work	Social Work Administration
Social Work Administration	

General Requirements

General requirements for graduate degrees may be found in the Graduate School section of this bulletin, beginning on page 18. 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/she plans to major.

INDUSTRIAL RELATIONS

Office: 5165 Gullen Mall at Merrick

Director: Mark L. Kahn

This graduate program provides a curriculum leading to the M.A. degree in Industrial Relations (MAIR). Because MAIR is inter-college, as well as interdisciplinary, it is administered by the Graduate School.

MAIR is jointly sponsored by three academic departments: Economics and Psychology in the College of Liberal Arts, and Management in the School of Business Administration. Policy direction is provided by an Executive Committee comprised of one representative of each sponsoring department.

MAIR is designed to provide professional preparation for a career in industrial relations with a focus on the substance and process of collective bargaining. Students will be prepared for industrial relations positions in government, business and union organizations, and MAIR intends to assist in the appropriate job placement of its graduates. MAIR will also provide knowledge and skills for persons who contemplate entering or who are already engaged in self-employment involving industrial relations, such as labor arbitration.

Admission

Admission is limited to holders of baccalaureate degrees from regionally accredited institutions and is granted only to those applicants who evidence promise of success in industrial relations study.

Admission to the program requires four recommendation forms and completion of the program application form, in addition to the transcripts and application form required by the Graduate School. The Graduate Record Examination (GRE) or the Graduate Management Admissions Test (GMAT) is required of all applicants. In the evaluation of applications, the Executive Committee will consider: (1) the overall or upper-division honor point average; (2) GRE and GMAT scores; (3) applicant's performance in previous graduate courses, if any; (4) the quality of applicant's employment experience at increasing levels of responsibility; and (5) other appropriate indicators of successful performance as a graduate student, including the content of reference appraisals.

Prerequisites

Students who have been admitted but who do not possess all of the following prerequisites must remedy any deficiency without graduate credit: statistics (equivalent to ECO 410 and 510, or ECO 410 and FBE 540); introductory micro- and macroeconomics (such as Economics 101 and 102 or Finance and Business Economics 608); and one course in college mathematics (equivalent to at least Mathematics 150). A grade of C or better is required for all prerequisite courses.

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

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

Curriculum

MAIR requires the satisfactory completion of at least thirty-two credits in graduate study, including a Core Curriculum of seven three-credit courses. Two options are available:

Plan B: Ten three-credit courses, plus a three-credit Master's Essay.

Plan C: Eleven three-credit courses.

The Core Curriculum is as follows:

1. Labor Relations Institutions and Public Policy (ECO 642)
2. Organizational Psychology (PSY 653)
3. Labor Relations and Collective Bargaining (MGT 775)
4. Economic Factors in Industrial Relations (ECO 747)
5. Psychology of Union-Management Relations (PSY 656)
6. Union Contract Administration (MGT 777)
7. Seminar in Industrial Relations (I R 750)

Four elective courses (or, under Plan B, three elective courses plus the Master's Essay) will complete the program. Selection of electives will be guided by the student's prior preparation and career objectives and will require the approval of the student's graduate adviser. *Not more than two elective courses may be taken in the School of Business Administration.* Electives are not limited to courses offered by the sponsoring departments.

The *Seminar in Industrial Relations* is to be taken only after the completion of the other six Core Courses.

The topic and methodology of the *Essay* to be completed under Plan B must have the prior approval of the Director, who must also approve the appointment of the faculty member who will direct the Essay.

Retention

Graduate students in the MAIR program will be required to earn a 'B' (3.0) average to satisfy degree requirements. *If a grade below 'B' is received in a core course, that course must be repeated promptly and a grade of 'B' or better obtained.* A grade of 'C' in two graduate courses will constitute a sufficient basis for dismissal from the program.

Candidacy

Students are expected to file a *Plan of Work* when nine graduate credits in the MAIR curriculum have been earned. Upon approval of the *Plan of Work* the student's rank will be changed from 'applicant' to 'candidate' provided the applicant's honor point average is at least 3.0.

Waivers

A Core Course may be waived only if the student demonstrates, to the satisfaction of the Executive Committee, that he/she has completed an equivalent course with a grade of B or better and elects an additional approved elective course in its place.

Advising

All academic advising and the signing of Program Request Forms will be done by the Director. Students should call the MAIR Office (577-4380) for information on advising hours.

COURSES OF INSTRUCTION (I R)

740. Labor Relations Law. Cr. 3

Prereq: ECO 642 or MGT 775; enrollment in MAIR or consent of instructor. Federal regulation of union organization, collective bargaining, and union contract administration in the private sector. Norris-La Guardia Act; National Labor Relations Act, as amended. Content, administration and judicial interpretation of labor relations legislation.

745. Employment Relations Law. Cr. 3

Prereq: ECO 642 or equiv.; enrollment in MAIR or consent of instructor. Federal and state legislation affecting employee-employer relations: Title VII of the Civil Rights Act; pension regulation (ERISA); occupational safety and health (OSHA); Fair Labor Standards Act. Implementation of these policies and their effect on labor-management relations.

750. Seminar in Industrial Relations. (ECO 749). Cr. 3

Prereq: enrollment in MAIR; six core courses; must be taken as part of final sixteen credits. Study of selected industrial relations topics. Research paper required of each student. Industrial relations specialists utilized as guest speakers.

760. Internship in Industrial Relations. Cr. 1-3 (Max. 4)

Prereq: enrollment in MAIR and consent of director. Active involvement in industrial relations duties for an employer, union, government agency, or industrial relations professional; apprenticeship to a labor arbitrator; or other appropriate opportunity for industrial relations experience. At least eight hours per week; may be paid or unpaid.

770. Trends in Collective Bargaining and Improving the Quality of Work Life. Cr. 3

Prereq: four MAIR core courses or consent of instructor. Collective bargaining, current and future directions; emphasis on joint union-management approach to developing programs improving the quality of work life through workers' involvement in the decision-making process; examination of practical procedures to initiate and implement such programs.

790. Directed Study. Cr. 1-3 (Max. 4)

Prereq: MAIR core course in relevant field; prior approval of MAIR Director for topic and instructor; written consent of adviser and graduate officer. Intensive study of significant industrial relations topic against background of more general course work. Preparation of term paper required.

799. Master's Essay Direction. Cr. 3

Prereq: enrollment in MAIR; completion of 30 hours in MAIR program; consent of adviser. Plan B alternative to a three-credit elective course. Opportunity for intensive research and writing experience on relevant subject matter.

See page 633 for interpretation of numbering system, signs and abbreviations

Graduate Directory

Wayne State University
Detroit, Michigan 48202
Area Code (313)

Graduate School

Ph.D. Programs
Fellowships and Scholarships
352 Mackenzie Hall
Telephone: 577-2170

Graduate Admission

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

Graduate Assistantships

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

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

Catalog Requests

University Mail Department
109 Administrative Services Building
Telephone: 577-2135

University Centers and Institutes

Center for Black Studies

586 Student Center Building

The Center for Black Studies grew out of the struggles of black students to establish an educational facility committed to filling the serious omissions in knowledge about the black experience. Since its inception in 1972, the Center has combined teaching, research and service in an effort to enhance the quality of life for students and all residents in the urban environment of Wayne State University.

The Center has assumed the position of an educational catalyst, seeking to play a dramatic role in the growth and development of black 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 259 of this bulletin.

Center for Chicano-Boricua Studies

The Center for Chicano-Boricua Studies (CBS) is a multi-service unit engaged in teaching, research and service.

Teaching: The Center's academic component consists of the CBS freshman year program, the CBS Co-Major program and the Bilingual Education Doctoral program. The freshman program extends equal educational opportunity to Latino high school students in the Detroit Metropolitan and offers a curriculum which is socially and intellectually directed to the Latino experience in the United States. CBS core courses fulfill social science and humanities requirements in the College of Liberal Arts. The CBS Co-Major program is designed particularly for students who plan to work with Latino communities. The master's and doctoral bilingual education programs meet the needs of students interested in bilingual education.

Research: The Center's research effort is in education and the social sciences as they relate to Spanish origin groups in the United States.

Service: The center serves both the University and the Latino community. Center personnel sit on various local and state committees, task forces and commissions concerned with the Spanish speaking community.

Center for the Study of Cognitive Processes

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 Services Center

The University operates one of the largest computing centers in the metropolitan area. This modern facility is dedicated to the service of all university students, faculty, staff and public sector customers. Access is provided both through terminals and batch processing. A Remote Job Entry Station in the Science Library basement is open during library hours. Other service locations of the center are on the

third floor, Administrative Services Building 2, 5950 Cass Avenue, where a publications center and a consulting office are located, and at 5925 Woodward. Public terminals are primarily provided within the University libraries; they may be used by anyone having a valid Computer Services Center (CSC) computer identification.

Available computers are two Amdahl 470V6's. One of these computers has four megabytes of main storage, the other has six megabytes, and large amounts of disk and tape storage. The major operating systems are Michigan Terminal System (MTS) and the IBM's Multiple Virtual Storage (MVS). All systems run under IBM's Virtual Machine (VM) operating system. MTS is a general purpose time-sharing system providing a rich command language and a powerful editor. Many applications programs extend the capabilities of the operating systems. These include statistical and mathematical libraries, graphics, data base management systems, information retrieval and text processing. Compilers are available for most programming languages. MVS primarily supports the data processing needs of the University and certain external users. This data processing is supported by the ADABAS database management system.

The Merit Computer Network connects the University computers to the computing facilities of the University of Michigan (an Amdahl 470V/8 and of Michigan State University (a CDC-6500). The Merit Computer Network also provides Telenet access from most major cities of the United States, Canada, Europe and Japan; any computer belonging to the Merit Network can be accessed from these cities through a local telephone call.

Customers of the CSC are encouraged to use the facilities themselves. The required skills may be learned through courses taught by various departments, including Computer Science and through free, non-credit seminars offered each semester by the CSC. Various publications, available through the publications centers (333 Administrative Services Building II, and the main circulation desk of the Science Library) and for purchase through the WSU bookstore, describe the use of programs and systems. A monthly newsletter keeps customers informed of additions and changes in services.

Research Institute for Engineering Sciences

220 Engineering Building

The Research Institute was 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 operated by members and research associates of the Institute and by graduate students.

Institute of Gerontology

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, services 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 guidance 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 Peace and Conflict Studies

5229 Cass Avenue

The Center for Peace and Conflict Studies provides programs devoted to the resolution of conflict in all contexts, from the local community to the international system. Under the direction of an interdisciplinary executive committee, projects are developed that contribute to the exploration of the social and political problems of our time. The Center serves as the base for a co-major in peace and conflict studies.

Detroit Council for World Affairs: The Council is the community arm of the Center for Peace and Conflict Studies and presents activities for adults on crucial world issues and domestic and international conflict. The Council serves as a link between the University and the community in the greater Detroit metropolitan area.

Center for Urban Studies

5229 Cass Avenue

The center was created to provide the University with one central institution to focus on urban problems. Along with a full-time core staff, the Center is structured so that it can call upon any of the myriad University resources. The Center's major activities are: (1) research and evaluation in a number of areas related to urban problems, and (2) to act as a resource agency for community organizations and groups. These efforts result in a broad program of theoretical and applied research.

The Center also sponsors the Council on Early Childhood which was developed to provide an interdisciplinary forum for University faculty, students and community representatives in the field of early childhood.

UNIVERSITY STUDENT SERVICES

OFFICE OF THE VICE PRESIDENT FOR STUDENT AFFAIRS

573 Student Center Building; 577-1992

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 the encouragement of intellectual stimulation beyond the traditional classroom environment.

Moreover, this office oversees student personnel services, student organizations and activities, and special student programs. It is the responsibility of the office to communicate with the President and his staff and to cooperate in the work of their divisions; to participate in development of the University with regard to its program and staff needs; to help students develop a sense of their 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.

Programs of the Division of Student Affairs 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, the Division seeks to minimize student frustrations so that the student may gain confidence in his/her ability to accomplish goals through established channels.

University Counseling Services

334 Mackenzie Hall; 577-3398

University Counseling Services have two major purposes: (1) to help students promote individual development in ways which will maximize benefits from their University experience, and (2) to help them find ways of coping with problems which interfere with their educational attainment. To implement these goals, non-credit courses in the areas of college and career orientation; and reading efficiency and study skills, are offered through this office; see page 569. To meet the differing needs of students, services are provided in a number of additional formats and contexts, and are described below.

The administrators of University Counseling Services and the non-credit courses of instruction offered by them (including Reading Efficiency courses) may be found on page 569.

Achievement Center, 112 State Hall, 577-3491: The Achievement Center is a multi-media 'walk-in' service for students who find an immediate need to improve or refine their academic skills. Individualized help is provided to deal with the wide range of problems which students confront in the University curriculum. In addition, mini-workshops are presented daily on such topics as test anxiety, note-taking skills, reading, writing, memory improvement and achievement motivation.

Life Career Development Laboratory, 340 Mackenzie Hall, 577-3398: The Laboratory is a 'walk-in' service which offers students consultation, testing and other activities to increase their self-awareness, their background of relevant occupational and curricular information and their decision-making skills so that they can more realistically evaluate potential career and educational direction.

Outreach Program, 334 Mackenzie Hall, 577-3398: To encourage students to develop clearer perceptions of how they can make their experience at the University more meaningful and constructive, a variety of informal programs and personal contacts are provided in settings where students congregate. The program promotes such diverse activities as values clarification exercises, informal discussion with faculty members, vocational interest and self-concept questionnaires and classroom presentations concerning assertiveness training, career development, mental health principles and study skills.

Psychological and Counseling Services, 334 Mackenzie Hall, 577-3398: These services provide students with special opportunities for consultation about needs or concerns for which highly individualized help is desired. Any facet of experience which affects a student's educational progress may be explored with members of the counseling staff. Counseling may help students to clarify for themselves their own identity and relationship with the educational and occupational world, to explore opportunities for development, to set and realize goals and to resolve motivational and other personal conflicts. In addition to confidential private consultation, a number of group counseling programs are offered.

Reading and Study Skills, 467 W. Hancock, 577-3368: The structured programs offered by this office are designed for students who want help in developing the learning process skills necessary to achieve realistic educational goals. Service is provided through non-credit courses (see page 569) and laboratory experiences or through programs coordinated with academic departments or special University programs.

Testing and Evaluation, 343 Mackenzie Hall, 577-3400: Testing is provided to students for entrance examinations, freshmen tests, qualifying examinations for course selection and tests required by professional associations and graduate schools. Testing and Evaluation services are also provided to faculty and academic personnel and 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. Research studies are undertaken to provide background data for planning adequate services and other resources for the student body.

Re-Entry to Education Program, 336 Mackenzie Hall, 577-3398: This program offers workshops, programs, and support services to day and evening students. Services and programs are designed to meet the needs of students who have interrupted their education and are now pursuing a degree at either the undergraduate or graduate level.

Women's Resource Center and Program, 336 Mackenzie Hall, 577-3398: This office provides free services for University students, faculty, staff, and to community persons who want help in solving academic, personal, or family problems or who need information to assist in academic research related to the needs of women. Programs and workshops are free or at low-cost enrollment. Although activities focus on the needs of women, participation is open to men as well.

International Services Office

470 Mackenzie Hall; 577-3422

The University has one of the largest and most diversified international constituencies in the United States. The International Services Office

provides individual counseling, campus and community programming and special services meeting the needs of the students, scholars, and employees from outside the United States.

Non-Immigrant Visa Students: The Immigration and Naturalization Service (INS) regulations require that all students on temporary visas must pursue their studies on a full-time basis at the institution they have been authorized to attend. Undergraduate students (including those with Post-Bachelor's Degree Status) must successfully complete at least twelve credits each term (excluding Spring-Summer term). Graduate students must successfully complete at least eight credits each term (excluding Spring-Summer term).

The University is required by INS regulations to file reports in cases of non-compliance.

Scholars and Employees from Abroad: Scholars and employees from abroad are often involved in University programs to enable the exchange of specialized knowledge and/or temporarily meet specialized staffing needs. The International Services Office provides centralized support services necessary to enable and assure the employability of such non-U.S. citizens within U.S. government regulations. University departments intending to hire foreign scholars or to hire foreign born personnel should contact the ISO. International counselors will assist the department and potential employee with the immigration procedures involved.

International Activities: A free International Coffee Hour, held in the Student Center Building every Wednesday from 11:30 a.m. to 1:30 p.m., provides opportunity for dialogue with and among all internationals at the University. Host families, field trips, orientation, translation, speaker's bureau, International Fair, holiday programs, and special services to foreign spouses are also coordinated through the International Services Office.

Military and Veterans Affairs

5743 Woodward; 577-3374

Veterans and eligible dependents have an excellent resource in this office. Knowledgeable counselors will be glad to discuss individual educational goals and problems. All veterans must contact this office at registration time in order to be certified for their educational benefits.

V.A. Educational Loans: Direct loans from the Veterans Administration are available for student-veterans needing assistance beyond regular V.A. allowances in order to meet educational costs. Applications are available through the Office of Military and Veterans Affairs.

V.A. Vocational Rehabilitation: Vocational rehabilitation programs help the service-disabled veterans to select, prepare for, and secure work that is in line with the veteran's personal goals, interests, abilities and physical capacities.

V.A. Tutorial Assistance: Tutorial assistance is available to help defray tutoring costs for eligible persons. Veterans must be enrolled on a half-time or more basis. Currently, tutorial benefits are paid up to \$76 a month for a maximum amount of \$911 with no charge against basic entitlement.

V.A. Work-Study Jobs: Part-time student assistant positions are usually available at the V.A. Regional Office or the V.A. hospital (and sometimes on campus). Full-time students who agree to work 250 hours, currently receive \$837. Applications are taken through V.A. personnel stationed on campus.

Additional Services: The Office provides the services of a representative from the Veterans Administration in the office several

days a week. His role is to further assist veteran students in obtaining all the benefits they may be entitled to.

University Placement Services

1st Floor, Mackenzie Hall; 577-3390

University Placement Services provide help to students and alumni in defining career and employment goals and assist them in their search for employment opportunities.

Cooperative Education: The Cooperative Education Program provides students with opportunities to combine alternating periods of classroom learning with periods of paid on-the-job application in industry, business, government and social service agencies. The program is available to students in business administration, engineering and liberal arts curricula.

Student Employment: Student employment is available to those in search of financial assistance, or who wish to explore various career opportunities. Full or part-time jobs, either on a summer, seasonal, or continuous basis, are available on-campus through the Student Assistant Program or off-campus through an open posting process or the assistance of a placement coordinator.

On-Campus Interviews: Assistance in obtaining full-time employment after graduation is provided. Graduating seniors may increase employment opportunities through interviews with any of several hundred employers who visit the campus annually.

Resume and Credentials: A resume referral service offers recent graduates and alumni a continuous means of having their resume referred directly to the many employers who regularly list opportunities with the services. Master's and doctoral graduates, as well as graduates in nursing, social work, criminal justice and allied health professions may establish a professional credential file and may choose to be notified of professional vacancies as they occur.

Additional Services: A comprehensive Placement Library is available for information on over 1000 employers. Annual surveys of Wayne State University graduates are made to determine kinds of jobs and salaries obtained by former students and the satisfaction they feel about their jobs. A speaker's bureau is available to community, faculty and student groups, giving information on employment, resumes and interviewing techniques.

Special Student Service Programs

371 Mackenzie Hall; 577-1934

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 academic excellence in post-secondary 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 a university education 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 improve 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.

Educational Resources for Students with Disabilities

450 Mackenzie Hall; 577-3362 or TTY 577-3365

Numerous resources are available to students with physical or perceptual impairments. Based on individual need, services are designed to equalize opportunities for independence and direct participation throughout the campus. Resources include orientation to the campus, information about campus accessibility, consultation regarding methods of managing academic coursework and examinations, services for reading, recording, interpreters or notetakers, technical aids, campus transportation, parking and registration. Students are invited to contact the Office regarding any questions related to their individual situations.

Student Center and Program Activities

Director: 122 Student Center Building; 577-3482

Associate Director for Activities: 351 Student Center Building; 577-3444

The Student Center and Program Activities Office provides facilities for student use and opportunities for involvement in campus activities.

Facilities

Food Service: The food service is located on the first floor, with manual service available from 7:30 a.m. - 6:00 p.m., Monday through Friday, and vending machines available during regular building hours. Catering is also available for special programs and meetings.

Recreation Room: Recreation facilities are located in the basement of the building. Billiards, snooker, air hockey and table tennis equipment may be rented by the hour. Table games and a variety of electrical games are also available.

Typing Service: Typing service as well as typewriters for student use are available on the second floor, room 217. There is a charge for the typing service and use of the machines.

Grosberg Religious Center: Various religious denominations have offices on the sixth and seventh floors of the building. Programs, personal counseling as well as spiritual counseling are available from the various University Chaplains.

Program Facilities: Rooms are available for business meetings, seminars, conferences and for special programs. Reservations may be made in the Program Activities Office, room 351.

Program Activities

Student Organizations: There are approximately 200 active student organizations including such diverse categories as academic/professional, social action, political, sororities/fraternities, honoraries, ethnic and religious groups, as well as student governments. The *South End* is the student newspaper, published daily during the academic year.

Student Resource and Assistance Center: This Center, located in room 135 of the Student Center Building, provides information and programs that will enhance the students' experience on campus. Staffed by students, the Center is open from 9:00 a.m. - 6:30 p.m. Monday through Thursday and from 9:00 a.m. - 3:00 p.m. on Friday. Information available in the Center includes University programs and services; off-campus housing information; campus activities,

Share-a-Ride Board; travel information; job postings; SEMTA and DOT Bus Schedules; Book-Mates Study Groups; and Community Activities.

Leisure Learning School: The Leisure Learning School offers pleasurable learning experiences and opportunities for self development through non-credit courses during the fall and winter semesters.

Perspectives: The student handbook is printed annually for new students. This book includes information about University programs, policies, procedures and services, as well as activities. It is an invaluable aid for orientation to the campus.

WS & U: A University-wide orientation program is offered for entering freshmen over three weeks during the summer semester. Students learn about University programs and services, receive academic advising as well as register for fall classes during the one day program. A fall semester follow-up is provided with the Student Services Orientation Fair.

Additional Services: Student Activities advisers are available in the Program Activities Office to assist officers of organizations with planning activities. They will also assist individual students in finding new interests. The staff coordinates various campus events such as the Flea Market, Cultural Events and Student Organizations Day.

Health Services

4K, University Health Center; 494-4774
Henry A. Tazzioli, M.D., University Physician

Students are encouraged to use the Health Service at any time for health care needs including illnesses, physical examinations, and family planning. Counseling services are also available. X-rays and laboratory tests can be performed in the University Health Center; there are charges to students for these services.

The University requires that all students have a completed physical examination form on file at the Health Service. The Health Service will provide a tuberculin test or chest x-ray for this purpose at no charge to the student. Other examinations required by the University are also performed at the Health Service.

Students may choose to purchase hospitalization insurance for a reasonable fee. The policy provides stipulated amounts for hospitalization, surgery and emergency room fees. Forms for purchasing this insurance are available at the Health Service.

Medical visits to the Health Service are by appointment, which can be made by telephoning 494-4774. Transportation from the main campus is via the Three Center Mini Bus.

OTHER UNIVERSITY SERVICES

University Libraries

The University Libraries are housed in five separate units, four of which are free-standing buildings. As of June, 1981, the Library system had close to 3,300,000 separate items and subscribed to over 10,000 current journals. The collections also include 500,000 pamphlets, government documents, maps and 1,000,000 pieces of microprint, microfilm, microfiche, film strips and 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.

These collections are supplemented by the resources of two other major libraries, the 2,000,000-volume 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. Its collections include 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 to 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, 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 300,000 volumes and is currently receiving over 2,200 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 150,000 volumes and it receives over 3,000 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 449.

Arthur Neef Law Library

The Law Library, named in honor of the late Dean 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 215,000 volumes, making it the second largest law library in the State of Michigan. Approximately 900 periodicals and 300 loose-leaf services are received regularly. The Neef 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 195.

University Archives

Walter P. Reuther Library; 577-4024

The University Archives was established in 1958 to collect, preserve, organize and make available to qualified researchers those University records which have research value. The Archives also collects the records of student organizations, professional associations and personal papers of faculty members who have contributed to the development of the University and higher education. The collections include manuscripts, photographs, publications, tape recordings, Board of Governors Proceedings, catalogs, schedules of classes and an extensive vertical file. The Archives currently holds over 225 newsletters and publications including *Wayne Report*, *The South End* and less commonly known titles such as *Crumbs and Ravelings*, *Gabriel's Horn* and *Short Circuit*.

Archives of Labor and Urban Affairs

Walter P. Reuther Library; 577-4024

The Archives of Labor and Urban Affairs was established in 1960 to collect, preserve and make available to qualified researchers records of the American labor movement and related social, economic and political reform groups. The Archives has since become the official depository for the inactive files of the Congress of Industrial Organizations, the United Auto Workers, the American Federation of Teachers, the Newspaper Guild, the United Farm Workers, the American Federation of State, County and Municipal Employees, the Airline Pilots Association, the Industrial Workers of the World and many state and local labor organizations. Files have also been gathered from such groups as the Citizens' Crusade Against Poverty, the American Civil Liberties Union, the National Association for the Advancement of Colored People, the United Community Services of Detroit, and New Detroit. Many individuals who played leading roles in labor and urban affairs have also placed their papers in the Archives. Correspondence, minutes, clippings, notes, newspapers and other written records, as well as films, tapes and photographs, are available for research. The Archives Newsletter is published three times a year to describe recent acquisitions, research in progress and other topics.

Housing Office

700 Merrick; 577-2116

This office administers on-campus housing owned by the University and provides information about these units to interested students, faculty and staff.

The Helen Newberry Joy Residence Hall provides traditional residence hall rooms for undergraduate and graduate men and women on academic year (nine month) and summer session contracts. This space is usually available with little or no waiting period.

Katherine Faville Hall houses graduate men and women in fully furnished apartments. Roommates are administratively assigned and most apartments are designed for double occupancy. Nine-month contracts and summer session contracts are available.

The resident campus offers a variety of apartment dwellings for individuals and families wanting a twelve-month lease.

The Forest Apartments and the Helen L. DeRoy Apartments are modern, barrier-free high-rise buildings with both furnished and unfurnished apartments. Both buildings feature air-conditioning and permit families with children. Only graduate students, faculty and staff may live in the DeRoy Apartments.

The Chatsworth Tower is an elegant, older building particularly popular with faculty and staff. Most Chatsworth units are air conditioned. Children are not permitted to reside at the Chatsworth Tower and eligibility is restricted to faculty, staff and graduate students.

The Chatsworth Annex offers spacious, unfurnished two-bedroom units. Families with children are welcome. Residents pay their own utility bills except for heat and water. Because of the limited availabilities at the Annex, the waiting period is at least one year.

The Santa Fe and Sherbrooke Buildings are older buildings rented unfurnished. Children are not permitted to reside in these buildings.

Further information and application forms are available upon request at the Housing Office.

University Ombudsman

652 Student Center Building; 577-3487

Ombudsman: Edward Sharples

Associate Ombudsman: Jean Rockwell

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; issues may be brought to the attention of the Ombudsman which have been formulated in the student's mind as questions, doubts, or anxieties about a University matter.

The student's problems may be academic and/or nonacademic. Examples of academic problems are issues about admissions, registration, records, grading, course content, conduct of an instructor and requirements for graduation. Nonacademic problems include such matters as financial aid, accounts receivable, student services and the physical plant.

Many other University-related problems exist which the Ombudsman can help the student solve. The Ombudsman acts as an information source on all student matters, attempts to resolve problems when students become entwined in academic or bureaucratic red-tape, and acts as counsel for the student in appropriate circumstances.

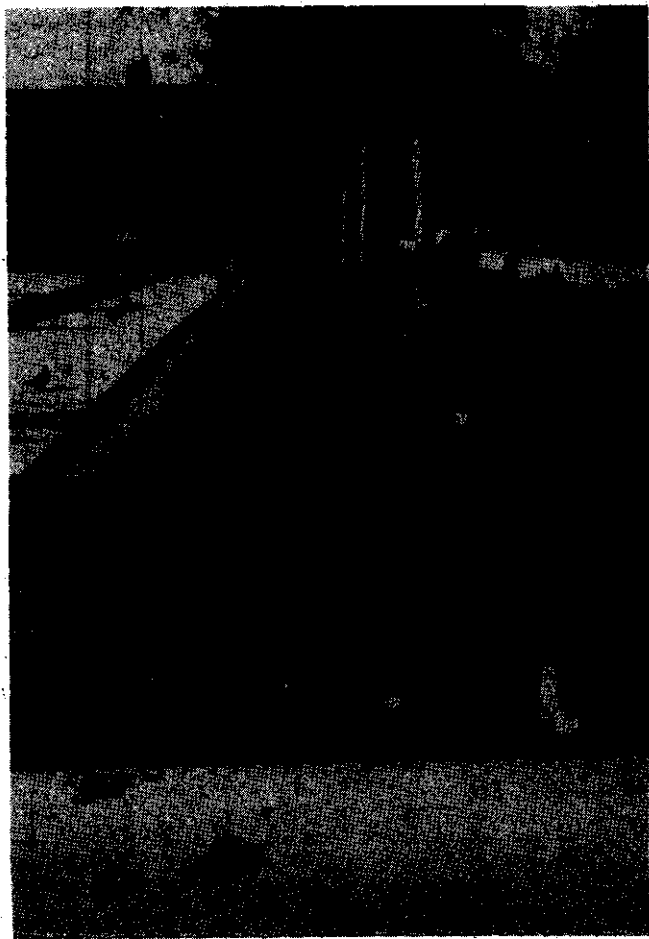
Additionally, the Ombudsman seeks to change those policies and practices of the University which have become outmoded, irrelevant, or otherwise unfair.

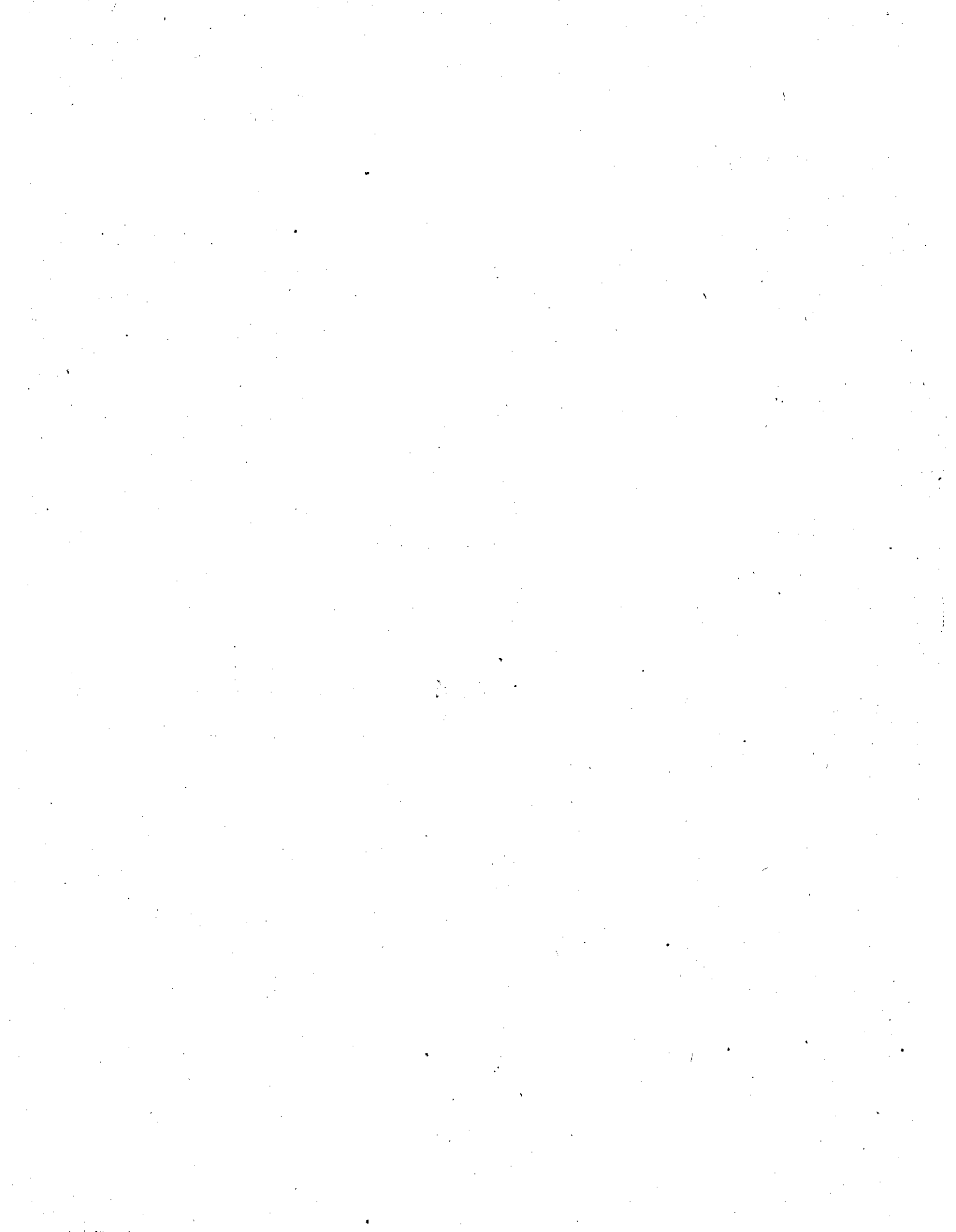
In any case, whenever the student is unsure about anything relating to the University, he/she is invited to consult the Ombudsman.

Frederick C. Matthaei Building

Athletics: The Department of Intercollegiate and Intramural Sports is housed in the Frederick C. Matthaei Building. Students may participate in a full range of sports as athletes and as spectators. Tickets at student rates are available in the Bookstore. Information on intercollegiate, intramural and club sports is available at 101 Matthaei Building, 577-4280.

Recreation: The facilities and services of the Division of the Health and Physical Education are available to students, faculty and staff for 'drop-in' recreation whenever unscheduled for instruction or formal athletic programs. Areas available include: swimming pool, handball-racquetball courts, squash courts, weight training room, basketball courts, volleyball court, tennis courts and playfields for softball, touch football and soccer. A special I.D. card provided at Matthaei is required for using indoor facilities; one guest may accompany a student, faculty or staff member after 5:00 p.m., Monday through Friday and any time during open hours on weekends. The guest fee is \$2.00. For additional information telephone 577-4295.





School of Business Administration

DEAN: JOHN G. MAURER III

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, 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 thirty-three credits, provided that the student has completed the pre-program foundation requirements. The M.B.A. program is presently offered only in the evening hours and to a limited extent on Saturday mornings.



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 a pre-business administration curriculum with the College of Liberal Arts. Students who wish to transfer from this college must satisfy the pre-business administration course requirements and have completed a minimum of fifty-four semester credits with at least a 2.5 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-four semester credits with at least a 2.5 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 all official collegiate transcripts must be submitted by transfer students to the Admissions Office of Wayne State University. Qualified students will then be referred to the Office of Student Services, School of Business Administration.

Students seeking admission who are currently enrolled in a pre-business administration plan of study at Wayne State University and who have a cumulative honor point average of less than 2.5 may be required to present final grades before formal admission action is taken.

There is no guarantee of admission to the School of Business Administration. Sufficient faculty resources must be present to comply with national accreditation standards. Formal appeals of admission denial may be made to the Director of the Undergraduate Program, School of Business Administration. Guidelines for appeal are available in the Office of Student Services and in the Office of the Dean.

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:* Seventeen courses (fifty-four credits)
2. *Core Curriculum:* Eleven courses (thirty-three credits).
3. *Major Requirements:* The accounting major requires ten courses (a minimum of twenty-nine credits); other majors require six courses (eighteen credits).
4. *Electives:* The accounting major requires twelve credits; other majors require twenty-three credits. The required distribution of elective courses is presented below.

Pre-Business Administration

The undergraduate program in business administration begins after students have acquired an educational foundation during the freshman and sophomore years in the basic sciences and the arts. Students complete the following courses as pre-business administration students in the College of Liberal Arts:

- * Accounting..... two semester courses in principles (Accounting 301 and 302)
- Business Law..... one course (Accounting 351)
- * Computer Science..... one course (Computer Science 100)
- * Economics..... two courses in principles (Economics 101 and 102)
- * English..... two semester courses (six semester credits) in composition (English 102 and 301) and successful completion of the English Proficiency Examination in Composition. No credit toward a degree in business administration is granted for English 101 or 108. A maximum of four credits toward a degree in business administration is granted for English 102, Freshman Composition (or equivalent). A minimum of eight quarter credits is required for students transferring quarter credits.
- * Mathematics..... one course in college-level mathematics, algebra and finite mathematics or calculus (Mathematics 150 or 151)
- Philosophy..... one course in practical reasoning (Philosophy 105)
- Psychology..... one course (Psychology 101 or 102)
- Sociology..... one course (Sociology 200)
- Speech..... one course in public speaking (SPB 200)
- * Statistics..... one course (Economics 410)
- Humanities..... one three semester credit course selected from the following areas: American studies, art, art history, classics, English (beyond English composition requirement), foreign language (beyond the first year), humanities, music, philosophy (not religion, and in addition to the practical reasoning course), theatre. For students transferring from a quarter calendar, the equivalent quarter credits must be presented (a minimum of four quarter credits).
- Natural Science..... one three-semester credit course selected from the following areas: astronomy, biology, botany, chemistry, geology, mathematics (beyond the mathematics requirement), physical science, physics, zoology. Courses in computer science do not satisfy the mathematics option. For students transferring from a quarter calendar, the equivalent quarter credits must be presented (a minimum of four quarter credits).
- Social Science..... one three-semester credit course selected from the following areas: anthropology, geography, history, political science (see American Government, page 13), psychology (beyond the introductory course), social science, sociology (beyond the introductory course). For students transferring from a quarter calendar, the equivalent quarter credits must be presented (a minimum of four quarter credits).

The Undergraduate Committee may, under certain conditions, admit students to the School of Business administration with up to three deficiencies in pre-business administration course requirements. However, no student will be admitted with all three of the following deficiencies: computer science, mathematics, and statistics.

All undergraduate students must satisfactorily complete the University requirement in the principles of American government. For the courses or course sequence which satisfy this requirement, see page 13. The Social Science group requirement listed above may also be satisfied by any course(s) used to meet the American Government

* A grade of C (2.0) or better is required in this course.

requirement.

Core Curriculum

After completion of the pre-business administration course requirements, all students must complete the following core courses:

- FBE 523..... Financial Markets, Institutions and Securities (Prereq: ECO 102; ACC 302 recommended)
- FBE 529..... Business Finance (Prereq: ECO 102; ACC 302 and ECO 410)
- FBE 540..... Quantitative Methods II: Statistical Methods (Prereq: ECO 410 or equiv.) **Must be satisfactorily completed in the first sixteen credit hours after admission to the School of Business Administration.**
- MGT 559..... Introduction to Management (Prereq: one course each in psychology and sociology)
- MGT 560..... Introduction to Production Management (Prereq: MGT 559, ECO 410 or equiv., CSC 100 or consent of instructor.)
- MGT 589..... Social and Political Influences on Business (Prereq: MGT 559 or consent of instructor.)
- MGT 660..... Nature of the Organization (Prereq: MGT 559 or consent of instructor)
- MGT 689..... Business Policy. **To be taken as one of the last five courses toward bachelor's degree**
- MKT 530..... Marketing Management (Prereq: ECO 102)
- MKT 533..... Business Communication. (Prereq: successful completion of English Proficiency Examination in Composition)
- MKT 535..... Marketing Analysis and Decision Making (Prereq: MKT 530 and FBE 540)

MAJORS

Majors are offered in accounting, business economics, finance, management and organization sciences, and marketing. After selecting a major, students consult the Office of Student Services, School of Business Administration, 6001 Cass Avenue, to obtain a *Plan of Work*. All courses must be taken in accordance with an approved *Plan of Work* and all course prerequisites must be observed.

Accounting (ACC)

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

- ACC 353..... Business Law—Corporations, Partnerships
- ACC 510..... Advanced Accounting Theory I
- ACC 511..... Advanced Accounting Theory II
- ACC 512..... Advanced Accounting Theory III
- ACC 513..... Accounting Information Systems
- ACC 514..... Auditing
- ACC 516..... Cost Accounting
- ACC 517..... Taxes on Income
- ECO 320..... Public Control of Business

Plus one of the following:

- ACC 563..... Computerized Accounting Systems
- ACC 613..... Accounting Under SEC and State Regulations
- ACC 615..... Michigan Taxes
- * ACC 617..... Governmental and Not-for-Profit Accounting
- FBE 627..... Advanced Business Finance

* Students who plan to sit for the CPA examination in the State of Michigan after July 1, 1983 must complete ACC 617.

Finance and Business Economics (FBE)

MGT 570.....	Personnel Administration
MGT 662.....	Behavior in Organizations

Corporation Finance

The corporate financial specialization prepares individuals for a career as a financial manager in non-financial corporations. Entry level positions are generally as junior financial analysts or junior accountants. Potential future responsibilities include management of working capital, operating budgets, financial statement preparation, bank relationships, long-term financial planning and capital budgeting, treasury operations and stockholder relations. Students are required to take:

FBE 621.....	Stock Market and Investments
FBE 630.....	Working Capital Management
FBE 631.....	Capital Budgeting and Long Term Financing
ACC 510.....	Advanced Accounting Theory I
ACC 516.....	Cost Accounting

Plus one of the following:

FBE 405.....	Business Economics
FBE 520.....	Risk Management
FBE 622.....	Portfolio Management
FBE 632.....	International Business Finance
FBE 633.....	Bank Management
FBE 634.....	Seminar in Financial Markets and Investments
FBE 635.....	Real Estate Finance

Financial Markets and Investments

This specialization prepares individuals for a career in financial institutions such as commercial banks, savings and loan companies, credit union and insurance companies and in other financial intermediaries such as investment banking firms, security and investment brokers, and security and commodity exchanges. Responsibilities within such firms are highly varied and include commercial and personal lending, branch management, security analysis, portfolio and trust management, real estate management, and insurance, commodity and security brokerage. Students are required to take:

FBE 621.....	Stock Market and Investment
FBE 622.....	Portfolio Management
FBE 634.....	Seminar in Financial Markets and Investments

Plus any three of the following:

FBE 405.....	Business Economics
FBE 520.....	Risk Management
FBE 630.....	Working Capital Management
FBE 631.....	Capital Budgeting and Long Term Financing
FBE 632.....	International Business Finance
FBE 633.....	Bank Management
FBE 635.....	Real Estate Finance

Management and Organization Sciences (MGT)

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

Students specializing in general management, operations management, personnel management, and industrial relations will complete the following core courses, and then select from designated courses in the area of specialization.

MGT 561.....	Management Decision Making
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General Management

This specialization prepares an individual for a career as a manager in a variety of organizations. It is the broadest of the four curricula, providing knowledge and skills in planning, decision making, personnel administration, and the utilization and direction of human skills and other resources. Students take:

MGT 661.....	Corporate Strategic Planning
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plus two of the following

MGT 566.....	Small Business Management
MGT 574.....	Collective Bargaining
MGT 664.....	Organizational Decision Making
MGT 667.....	Models in Operations Management I

Operations Management

A position as a production and operations specialist or manager within a large organization is the usual goal of an individual majoring in this area. It builds on the core course, MGT 560, Introduction to Production Management. It prepares the individual for the following activities: planning, scheduling, quality control, and efficient production management using various quantitative techniques. Students take:

MGT 667.....	Models in Operations Management I
MGT 696.....	Models in Operations Management II
ACC 516.....	Cost Accounting

Personnel Management

A career in personnel administration within a variety of organizations is the usual goal of a person in this specialization. It prepares the individual in the areas of manpower planning, recruiting, testing, placement, job analysis, salary administration, selection, training, human resource planning, and performance appraisal. Students take:

MGT 574.....	Collective Bargaining
MGT 577.....	Advanced Personnel Management
MGT 678.....	Current Issues in Employee Relations

Industrial Relations

An industrial relations major prepares a student for a career within a firm in which the workforce is represented by a collective bargaining agent. It provides the knowledge and skills for negotiating and administering agreements. Students take:

MGT 574.....	Collective Bargaining
MGT 574.....	Administering the Labor Agreement
MGT 678.....	Current Issues in Employee Relations

Small Business Management

This specialization is designed to focus on the basic knowledge and skills necessary for beginning and operating a small business. It also prepares individuals for managerial employment in smaller enterprises. Course work is designed to fit specific interests in specialized areas of service, retailing, wholesaling or manufacturing business. Students take:

MGT 566.....	Small Business Management
MGT 567.....	Small Business Management Problems
MGT 568.....	Creating a Small Business

Plus any three of the following:

ACC 353.....	Business Law—Corporations, Partnerships
MKT 570.....	Retail Management
MGT 570.....	Personnel Administration

MGT 574 Collective Bargaining
 MGT 662 Behavior in Organizations

Marketing (MKT)

The major in marketing is designed for students planning careers in advertising, public relations, research, retailing, sales management and logistics 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 545 Consumer Behavior
 MKT 585 Promotion Strategy
 MKT 641 Market Research and Analysis

Advertising/Public Relations

MKT 549 Principles of Advertising
 MKT 646 Public Relations of Business
 One course from a departmental list (MKT 550 or 551 recommended)

Business Logistics

MKT 560 Transportation and Distribution Management
 MKT 562 Business Logistics
 One course from a departmental list (MKT 563 recommended)

Sales Management

MKT 548 Market Forecasting
 MKT 644 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*.

Elective credits for students admitted to the School of Business Administration are taken under the direction of the School of Business Administration. Students who wish to take elective courses in schools or colleges other than the College of Engineering or the College of Liberal Arts must obtain the prior approval of the Undergraduate Committee or its designee. No degree credit will be granted if prior approval is not obtained.

Accounting majors must complete:

Twelve 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 (300 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, remaining non-business elective courses must be taken at the 300 level (junior and senior) or higher in the College of Liberal Arts or the College of Engineering.

Other majors must complete:

1. Three credits in a business elective course. This course *must* be selected from those offered in the School of Business Administration. Upper-division courses in the Department of Economics (300 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. Twelve 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 (300 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, remaining non-business elective courses must be taken at the 300 level (junior-senior) or higher in the College of Liberal Arts or the College of Engineering.

3. Eight credits in free elective courses. Students may select courses offered in the School of Business Administration or in the College of Liberal Arts or the College of Engineering.

After a student has been admitted to the School of Business Administration, remaining free electives must be taken at the 300 level (junior-senior) or higher in the College of Liberal Arts or the College of Engineering.

No credit will be allowed for remedial courses of a subcollegiate level. No degree credit will subsequently be allowed for courses originally taken on a non-credit basis.

Language Electives

Students who are interested in employment opportunities overseas or in international corporations should consider as electives certain foreign language courses especially designed for business administration majors. For more information, contact Chairperson, Department of Romance and Germanic Language and Literature, 487 Manooagian Hall, telephone 577-3002.

DEGREE REQUIREMENTS

Bachelor of Science in Business Administration

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

1. Satisfactorily complete a minimum of 128 credits in course work.
2. Satisfactorily complete all pre-business administration, core, major and elective course requirements.
3. Take at least fifty-two credits in business and economic subjects and at least fifty-two credits in subjects other than business and economics. Up to eight credits in lower-division (freshman and sophomore) economics courses may be counted in either of the above two curricular categories. No more than seventy-six 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 the American Government requirement. The following courses and sequence apply: (1) History 103, (2) History 204 and 205, (3) History 516 and 517, (4) Political Science 101, (5) Political Science 103, (6) Political Science 201 and 202, (7) Social Science 191 and 192.

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 qualify for 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 three to eleven credits in a single foreign language. The number of credits is determined by the following:

1. Eleven credits for a student who is beginning the study of the language.
2. Three to eleven credits, depending upon placement by the foreign language department concerned, for a student who is continuing the study of the language.

Mortuary Science

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

Professional Development Co-Op Program

The School of Business Administration participates in a University Co-op Program of alternating semesters of work and study open to a number of eligible students. Eligibility begins in the junior year or upon admission to the School of Business Administration if the student has previously earned more than the minimum fifty-four semester credits required for admission to the School. Students interested in this program should contact the Cooperative Education Office, Room 111, Mackenzie Hall.

Students admitted to the program with minimum junior standing should recognize that an additional year may be needed to fulfill the requirements for the bachelor's degree. No academic credit is granted for the Co-op Program; S/U marks, however, are given and are listed on the official University transcript.

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. Students may not attend a class for which they are not officially registered, and will not be added retroactively.

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 semester in which he or she expects to complete the requirements for the degree. If an *Application for Degree* was filed for a previous semester 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 or *Plans of Work* within the School of Business Administration should submit a request in writing to the Student Services Office, 6001 Cass Avenue. 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 128 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 him/herself, fellow students, instructors, and the University in matters concerning his or her educational endeavors. Thus, a student should not falsely claim the work of another as one's own, or misrepresent him/herself so that the measures of one's academic performance do not reflect his/her own work or personal knowledge.

If there are reasonable grounds to believe that a student has disregarded the regulations or student 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 three. A cumulative honor point average of 2.75 is required to be eligible for consideration for directed study work. Students obtain required signatures prior to registration. No more than three credits in directed study are permitted in any semester. A total of no more than five credits in directed study may be used to fulfill graduation requirements.

English Requirement

The English Proficiency Examination in Composition is a pre-business administration requirement. Each student must pass the examination within the first sixteen 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 sixteen 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. Students taking the English Proficiency Examination must apply to Testing and Evaluation, University Counseling Services; the fee is \$7.00.

No credit toward a degree in business administration is granted for English 101 or 108. A maximum of four credits toward a degree in business administration is granted for English 102, Freshman Composition (or equivalent).

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 100 credits in residence, 3.4 if between 60 and 99 credits.

High Distinction— An honor point average of 3.6, if the candidate has earned at least 100 credits in residence, 3.7 if between 60 and 99 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 chairperson of the department in which the course is listed. If the problem remains unresolved at this level, the student should refer it to the Associate Dean for Academic Programs.

Non-classroom-related grievances should be brought directly to a Departmental Chairperson or to the Office of the Dean. Additionally,

the University Ombudsman (see page 36) is available to all students for the resolution of University-related problems.

A copy of the School of Business Administration's grievance procedure is available in the Office of the Dean or in the Office of Student Services, 6001 Cass Avenue.

Incomplete Marks

The mark of I which is not converted to a letter grade within one 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 the instructor agrees to certify in writing to the University Records Office that additional time is needed for the removal of the Incomplete.

Normal Program Load

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

Passed/Not Passed Registration

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/her 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 twelve credits completed, or a 2.0 major honor point average within the next six credits completed 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 either the major or 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 dismissal 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 nine 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.

¹ The Undergraduate Committee is composed of the four departmental chairpersons and is chaired by the Associate Dean for Academic Programs.

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 or she registers, without good reason as determined by the Dean or 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 chairperson, permanently exclude a student from a major, if the student fails to remove himself or herself from probationary status within the prescribed number of credits.

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 or her 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 satisfactory 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 thirty-two credits must be taken at Wayne State University. In exceptional cases, a limited number of the last thirty-two credits elected toward a degree may be taken at another accredited college or university. All such cases must receive the approval of the Associate Dean for Academic Programs 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 chairperson. Five years after the end of a course, grade books may be returned to the instructor or destroyed by the department.

Waiver of Course Requirements

Students are expected to comply with all course prerequisites as stated in this bulletin and in the Schedule of Classes. Exceptions may be granted in certain cases for which prior written approval of the Director of the Undergraduate Program is required.

Waiver of Degree Requirements

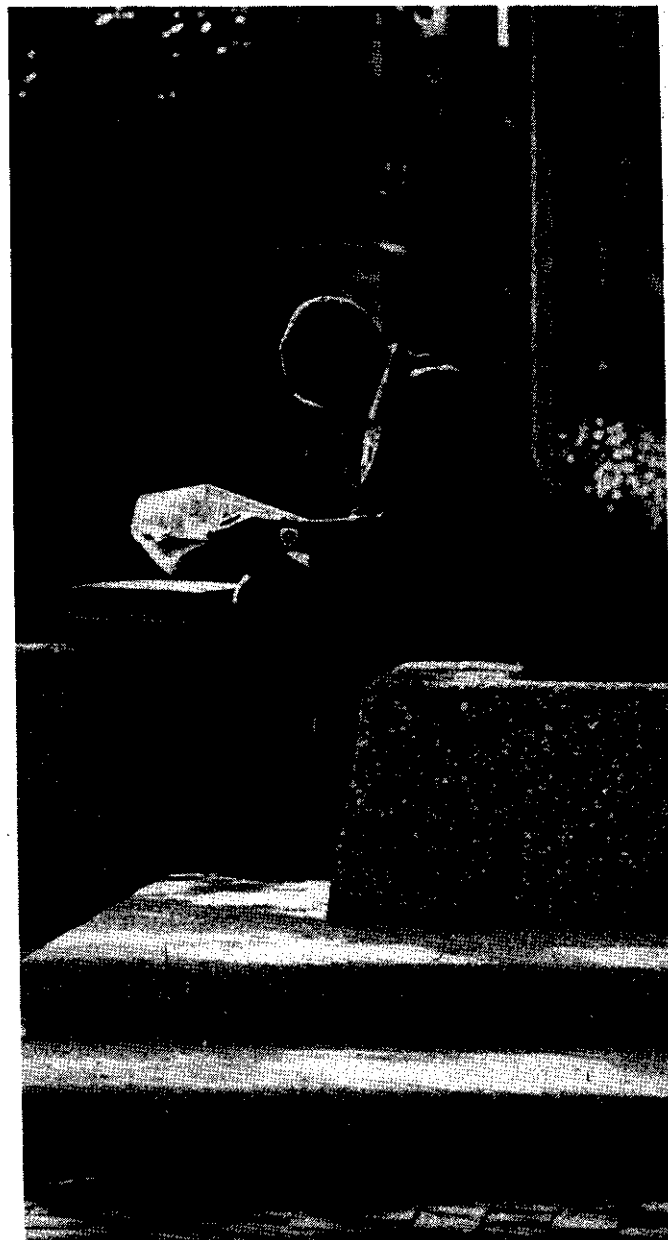
Students are expected to comply with degree requirements as listed in this bulletin and on their *Plans of Work*. They may petition for a modification in degree requirements by completing a waiver form and submitting it to the Office of Student Services, School of Business Administration.

Waiver of a School requirement requires the recommendation of the Undergraduate Committee and the *approval* of the Associate Dean for Academic Programs. Waiver of a departmental requirement requires the recommendation of the Departmental Chairperson and the *approval* of the Associate Dean for Academic Programs.

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

Withdrawals From Class

Students who wish to drop a class after the fourth week of class must obtain the instructor's signature of approval on the Change of Elections form. Students are advised that the obtaining of such a signature of approval is not automatic. Each instructor will announce, at the beginning of a course, his or her policy regarding students' requests for withdrawals after the fourth week.



MASTER OF BUSINESS ADMINISTRATION

The graduate program leading to the Master of Business Administration degree provides a professional education in business administration. The program provides the common body of knowledge in business and administration as well as opportunities for advanced work. The program beyond the common body of knowledge is broad in nature and is directed at general competence for overall management. There are four phases of coursework which are required: foundation, core, concentration and elective.

Foundation Requirements

The following ten foundation requirement courses¹ are open only to students who have been formally admitted to a graduate program at Wayne State University.

ACC 601	Financial Accounting
ACC 602	Managerial Accounting
ACC 605	The Legal Environment of Business
CSC 502	Computers and Business Research
FBE 604	Financial Administration
FBE 608	Economic Environment and Business Behavior
FBE 609	Quantitative Analysis: Theory and Application
MGT 600	Introduction to Operations Management
MGT 606	The Process of Management
MKT 603	Marketing Principles and Policies

In addition to the above ten courses, a college-level mathematics course is required. This course may be taken by students who have not yet been admitted to graduate program status.

While all of the above foundation courses are required, students who have had equivalent coursework in their undergraduate programs may be granted waivers of certain foundation courses at the time of their admission to the graduate program.

In general, a baccalaureate degree in Business Administration from a regionally accredited institution fulfills most or all foundation requirements. Each applicant's background will be individually examined by the Graduate Committee or its designee to determine if any foundation course work is needed.² All foundation requirements must be completed before a student begins core, concentration and elective courses.

A cumulative honor point average of 3.00 (B) is required for foundation requirements completed following receipt of the bachelor's degree.

Core Requirements

The following eight core courses are required of all students:

ACC 710	Financial Reporting Framework I
FBE 701	Quantitative Methods Applied to Business Decisions
FBE 721	Managerial Finance
FBE 782	Managerial Economics
MGT 706	Management and the Organization
MGT 774	Business and Contemporary Society

¹ Equivalent courses offered at the undergraduate level may be taken to satisfy foundation requirements prior to graduate admission. Further information regarding such courses is available in the Office of Student Services, 6001 Cass Avenue.

² The Graduate Committee is composed of the four Departmental Chairpersons, and is chaired by the Associate Dean for Academic Programs.

MGT 789	Seminar in Business Policy
MKT 703	Marketing Strategy

MGT 789, Seminar in Business Policy, is to be taken in the final twelve credits of the graduate program and after the completion of the other seven core courses.

A more advanced course in the subject area will replace the pertinent core course for those students with an undergraduate major in accounting, business economics, finance, management or marketing. The Graduate Committee or its designee will make the course substitution after consultation with the appropriate departmental chairperson.

Concentration Requirements

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 two courses selected to meet the particular professional needs of the candidate.

The choice of a specific concentration area should be made at the time of application or as soon as possible after the student has been admitted to the program. The choice must be made before the completion of twelve credits in course work at the 700 level or higher. 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 (Associate Dean for Academic Programs).

Listed below are illustrative courses in the concentration areas. Students may, with their adviser's prior approval, select different combinations of concentration courses within a department as well as select concentration courses in more than one department.

Accounting

ACC 712	Tax Problems in Business Affairs
ACC 713	Cost Accounting, Control, and Analysis
or	
ACC 714	Advanced Tax Problems
ACC 719	Advanced Auditing
or	
ACC 715	Information Systems for Planning and Control
ACC 751	Data Base Systems

Business Economics

FBE 783	Business Conditions Analysis
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Plus one of the following:

FBE 709	Money and Capital Markets
FBE 756	Managerial Forecasting Techniques
FBE 785	Seminar in Business Economics

Finance

Two courses from the following including either FBE 722 or FBE 723:

FBE 709	Money and Capital Markets
FBE 722	Advanced Managerial Finance
FBE 723	Investment Policies
FBE 786	Seminar in Finance
FBE 787	International Business Finance

Industrial Relations/Personnel

MGT 775 Labor Relations and Collective Bargaining

Plus one of the following:

MGT 777 Union Contract Administration

MGT 898 Industrial Relations and Public Policy

Management and Organizational Behavior

MGT 762 Complex Organizations

Plus one of the following:

MGT 763 Organizational Change and Development

MGT 768 Executive Decision Making

MGT 800 Seminar in Management

Personnel/Human Resources

MGT 764 Management of Human Resources

Plus one of the following:

MGT 772 Advanced Personnel Administration

MGT 769 Executive Development

Marketing

MKT 745 Business Research and Methodology

Plus one of the following:

MKT 742 Sales Management Problems

MKT 743 Advertising Management

MKT 746 International Business

MKT 747 Consumer and Industrial Buying Behavior

MKT 762 Business Logistics Management

Operations Management

MGT 751 Operations Management I

MGT 753 Operations Management II

Electives

After selecting a concentration area, each M.B.A. student selects one elective course with the assistance and approval of his/her academic adviser. The approval of the adviser and the Graduate Officer must be obtained prior to registering for the course. The purpose of this elective is to provide the student with additional breadth in business administration. The elective must be taken in a department other than that in which the student concentrates. Elective courses must meet course level and location requirements stated below.

M.B.A.—Accounting Plan of Work

The School of Business Administration offers a curriculum 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 satisfy State of Michigan examination qualifications 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 chairperson of the accounting department, a graduate adviser in accounting, or the Office of Student Services, 6001 Cass Avenue.

Graduate Admission

For complete information regarding graduate rules and regulations, students should consult the Graduate School section of this bulletin, beginning on page 18. 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 admission denial may be made in writing to the Director of the Graduate Program, School of Business Administration. Guidelines for formal appeals are available in the Office of the Dean and in the Office of Student Services, School of Business Administration.

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. Publications including samples of the GMAT are available at most university and commercial bookstores.

Since the GMAT is usually offered only four times a year with registration deadlines 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 Student Services, 6001 Cass Avenue 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 School may apply. See pages 18-30 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 pages 8-17 for these policies.

Academic Standing

Students who have been admitted to the Graduate Program on a provisional status are expected to remove that status by the completion of the first twelve credits of 700 level course work 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 nine credits to restore their cumulative honor point average to a 3.0 level. 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 and initially approves concentration and elective courses on a *Plan of Work* subject to final approval of the Graduate Officer. The student must obtain the adviser's approval before taking specific concentration and elective courses.

Credit will be disallowed for concentration and elective courses taken without prior written approval of the student's adviser and the Graduate Officer.

Advisers have the authority to initially approve concentration and elective courses in order to meet a student's specific career objectives. He or she may, for example, approve a student's taking of one graduate course in three of the School's four academic departments.

The Graduate Officer retains final approval authority for all concentration and elective courses.

Course Distribution Requirement

The graduate program terminating in the M.B.A. degree is designed to be broad in nature and aimed at general competence for overall management. The elective courses must be taken outside the department in which the student is concentrating.

Candidacy

Candidacy is an advanced status authorized by the School of Business Administration upon the satisfactory completion of all foundation requirements, the completion of the first twelve credits in approved

graduate course work with a cumulative honor point average of 3.0 or higher, and the submission of an approved *Plan of Work*.

Course Level Requirement

M.B.A. students are required to take all core, concentration and elective course work in classes reserved exclusively for graduate students. At Wayne State University, these classes are numbered at the 700 level or above. A graduate student must obtain the specific written approval of his or her graduate adviser and the Associate Dean for Academic Programs prior to registering for a course that is not reserved exclusively for graduate students. Credit will not be granted if approvals have not been obtained.

Course Location Requirement

M.B.A. students who wish to take a graduate course in a department outside the School of Business Administration must obtain the prior written approval of their adviser and the Associate Dean for Academic Programs. This approval is not routinely granted. Credit will not be granted if prior approval has not been obtained.

Foundation Requirements

If courses proposed to satisfy the foundation requirements to the M.B.A. 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 twelve credits per semester*. The student who is engaged in part-time work should limit his/her registration in proportion to the amount of his/her outside work. A student employed full-time will normally not register for more than six to nine graduate credits. A student working full-time who desires to carry more than nine credits, must obtain permission from the Associate Dean for Academic Programs. *Graduate assistants are required to register for at least eight credits each semester.*

Options for Degree

Students qualify for the Master of Business Administration degree upon completion of one of the following options:

Plan A: Twenty-four credits in final-program course work plus a nine credit thesis with an honor point average of not less than 3.0.

Plan B: Thirty credits in final-program course work plus a three credit essay with an honor point average of not less than 3.0.

Plan C: Thirty-three credits in final-program course work with an honor point average of not less than 3.0.

Each option must meet the course distribution requirement stated above. A final oral examination is required for *Plan A* or *Plan B*, which gives the candidate an opportunity to demonstrate ability to synthesize and interpret knowledge and to express himself or herself clearly.

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 page 24) is required of all students. Essays and theses must be approved in final draft form before the end of the semester prior to that in which it is expected that the degree will be granted.

Passed/Not Passed Registration

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 Student Services, 6001 Cass Avenue. No credit will be granted for graduate courses in business administration taken at Wayne State University prior to admission to the graduate program in 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 semester during which the student has taken course work which applies toward meeting the final thirty-three credit requirement of the degree. Students whose course work exceeds the time limitation must file a written request for revalidation with the Associate Dean for Academic Programs. Upon receipt of the student's *Application for Degree*, the School reserves the right of revalidation of credits which are over-age 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 may be 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 Associate Dean for Academic Programs, prior to the completion of the first twelve 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 (3.0) 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.
6. Course cannot have provided credit towards a prior degree.

A maximum of six semester credits (normally two courses) may be considered for transfer credit. In addition to evidence regarding the

above six conditions, the student must submit additional evidence concerning any proposed transfer course. Course syllabi, examinations, class notes, and the like, constitute additional evidence.

Waiver of Course Prerequisites

Requests for waiver of course prerequisites are not routinely granted. Waiver requests must be made in writing to the Director of the Graduate Program and must include full documentation of the case. No waiver will be granted if the supporting documentation consists solely of professional experience proposed in lieu of course work.



FINANCIAL AIDS AND AWARDS

Scholarship Awards

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

American Natural Resources System Scholarship-Intern Program. Open to undergraduate business majors.

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

Chrysler Corporation. Open to undergraduate business students.

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

General Motors Men's Club Scholarship. Open to pre-business administration freshmen.

Industrial Marketers of Detroit Award. Open to undergraduate marketing majors.

Evelyn McCabe Foundation Scholarship. Open to undergraduate accounting majors.

Peat Marwick Mitchell & Co. Minority Student Scholarship. Open to minority students majoring in accounting.

Aubrey C. Roberts Memorial Scholarship. This scholarship was established by friends and colleagues of the late Professor Aubrey C. Roberts and is available to accounting majors.

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

Many foundations and organizations sponsor scholarships for business administration students. Information about such scholarships, as well as those listed above, can be obtained from the Director of Student Services, 6001 Cass Avenue. For information about other financial aids, students should contact the Office of Scholarships and Financial Aids, 222 Administrative Services Building. Graduate students should also contact the Graduate School, 352 Mackenzie Hall.

Assistantships

A limited number of graduate assistantships are available. For further information the student should write to the Department Chairperson who heads his/her area of interest, or to the Director of Student Services, 6001 Cass Avenue, School of Business Administration, Wayne State University, Detroit, Michigan 48202.

Recognition 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 outstanding 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.

Dean's List. Each semester undergraduate students who have excelled in their academic studies are honored by placement on the Dean's List.

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

Financial Executives Institute Award. Awarded annually to the business administration student in the December graduating class with the highest honor point average.

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

The Wall Street Journal Student Achievement Award. Awarded annually to the business administration student in the May graduating class with the highest honor point average.

Placement Services

The School of Business Administration works with the University Placement Office to assist students in finding employment both while going to school and upon obtaining their degree. Prospective employers visit the University twice each year to recruit graduating seniors and M.B.A. students for positions with their firms. Career counseling and other placement services, including a career/placement library, are also available for Business Administration students. Employment opportunities are also placed periodically on a bulletin board in the second floor hallway of the Prentis Building.

Bureau of Business Research

The Bureau of Business Research supports faculty research, collects and disseminates business and economic information, facilitates the procurement of grants and sponsored research, administers the Consumer Panel, and provides professional services to the community.

Organizations

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

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

The American Society of Personnel Administration (ASPA) founded a student chapter at Wayne State University in 1977. The chapter is sponsored by the Detroit Personnel Management Association, which is a practitioner affiliate of ASPA. The chapter promotes professionalism in personnel and industrial relations through programs involving interaction between students and practitioners. (Faculty Adviser: James Martin)

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. (Faculty Adviser: William Burrell)

Beta Alpha Psi is a national scholastic and professional accounting fraternity open to qualified students who have declared a concentration in accounting and to full-time faculty of the Accounting Department. The fraternity objectives include: the promotion of the study and practice of accounting; the provision of opportunities for self-development and association among members and practicing accountants; and the encouragement of a sense of ethical, social and public responsibilities. (Faculty Adviser: Gerald S. Kruse)

A Wayne State University chapter of *Beta Gamma Sigma*, a national honor society for students in business administration, was formed during the 1978-1979 academic year. *Beta Gamma Sigma* has 173 active chapters and is the only scholastic honor society recognized by the American Assembly of Collegiate Schools of Business, the major accrediting body for schools of business administration.

Election to membership in this honor society is the highest scholastic honor that a student in business administration can achieve. To be eligible for membership, students must rank in the upper five percent of their junior class, or the upper ten percent of their senior class, or rank in the upper twenty percent of those receiving masters degrees. (Secretary-Treasurer: James T. Low)

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

The Wayne State University *Finance Club* provides its members with a better understanding of the field of finance and develops relationships with practitioners in the Detroit metropolitan area. The Club currently works with the National Investor Relations Institute, the Financial Analyst Society and the Economic Club of Detroit. (Faculty Advisers: Bernard A. Shinkel and John Wilson)

MBA Association was established in 1981. This organization is designed to recognize outstanding MBA students and to facilitate the academic and professional development of the graduate student population. (Faculty Adviser: George C. Jackson)

Phi Gamma Nu, national professional sorority in commerce established at Wayne State University in May, 1949, is open, by invitation, to students in business administration, economics, and business education. (Faculty Adviser: Barbara Price)

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. (Faculty Adviser: Harvey Nussbaum)

The *Student Senate* is the official student government body of the School of Business Administration and is composed of two representatives from each recognized business administration student organization, Student Council representatives, other students appointed by the Dean, the Director of Student Services, *ex officio*, and the Dean of the School of Business Administration, *ex officio*.

COURSES OF INSTRUCTION¹

Accounting (ACC)

Undergraduate Courses

301. Elementary Accounting Theory I. Cr. 4

Prereq: bachelor's degree; or sophomore standing, ECO 101 and ECO 102, MAT 150. Introduction to financial accounting principles; preparation and interpretation of balance sheets and income statements.

302. Elementary Accounting Theory II. Cr. 4

Prereq: ACC 301, sophomore standing, ECO 101 and ECO 102, MAT 150; or ACC 301, bachelor's degree. Continuation of financial accounting principles from ACC 301. Analysis of funds flow. Introduction to manufacturing and managerial accounting. Basic concepts of business data processing systems.

351. Business Law - Contracts, Sales. Cr. 3

Prereq: sophomore standing. Introduction to the court system and laws of contracts and sales.

353. Business Law - Corporations, Partnerships. Cr. 3

Prereq: ACC 351 and sophomore standing. Law of agency, corporations, and partnerships.

400. Internship in Accounting. Cr. 1-5

Prereq: consent of internship committee. Provides 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 semester.

450. (MGT 450) Business Administration Co-op Assignment. Cr. 0

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

490. Directed Study in Accounting. Cr. 1-3

Prereq: 2.75 cumulative h.p.a. to be eligible; written approval on proposal form prior to registration; consent of chairperson of student's major department. Three credits maximum in an academic semester. Advanced readings and research or tutorial under the supervision of a faculty member in areas of special interest to student and faculty member.

510. Advanced Accounting Theory I. Cr. 3

Prereq: ACC 302. Conceptual foundations of accounting principles. Analysis of various accounting theories concerning asset valuation.

511. Advanced Accounting Theory II. Cr. 3

Prereq: ACC 510. Interpretation of equities in corporation assets and measurement of income.

512. Advanced Accounting Theory III. Cr. 3

Prereq: ACC 511. Consideration of advanced concepts pertaining to consolidated statements, analysis of funds flow and liquidity, and supplemental financial disclosures of the effects of changing prices.

513. Accounting Information Systems. Cr. 3

Prereq: ACC 511 and CSC 100. Principles of design and control of

¹ See page 633 for interpretation of numbering system, signs and abbreviations

systems for processing accounting information, including a study of the use of computers for accounting applications.

514. Auditing. Cr. 3

Prereq: ACC 511, FBE 540. Principles and procedures of auditing; professional standards and responsibilities of the certified public accountant.

516. Cost Accounting. Cr. 3

Prereq: ACC 302. Theory and practice of cost accumulation and analysis to facilitate managerial decisions and cost control systems.

517. Taxes on Income. Cr. 3

Prereq: ACC 302 or 601. Theory of taxes on income and practical application of related laws and regulations.

554. Business Law - Property, Commercial Paper. Cr. 3

Prereq: ACC 351. Law of secured transactions, property, commercial paper, bankruptcy.

563. Computerized Accounting Systems. Cr. 3

Prereq: ACC 302 and CSC 100. Techniques of analysis and implementation of computer-based accounting information systems, including principles of data base management.

613. Accounting Under SEC and State Regulations. Cr. 2

Prereq: ACC 302 or 601. A review of Securities and Exchange Commission and state securities rules and regulations currently affecting the accounting profession.

615. Michigan Taxes. Cr. 2

Prereq: ACC 302 or 601. Theory of Michigan state taxes; practical application of related laws and regulations.

617. Governmental and Not-for-Profit Accounting. Cr. 2

Prereq: ACC 302 or 601. Accounting principles and procedures applied to fund accounting of government units and not-for-profit organizations.

Graduate Courses

601. Financial Accounting. Cr. 3

Prereq: admission to a graduate program. 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.

602. Managerial Accounting. Cr. 3

Prereq: ACC 601 or equiv.; admission to a graduate program. Fundamental principles of managerial accounting, dealing primarily with the preparation and utilization of financial information for internal management purposes.

605. The Legal Environment of Business. Cr. 2

Prereq: admission to a graduate program. Effects of legal forces on business policy and practice. Managerial decision-making in a legal environment.

710. Financial Reporting Framework I. Cr. 3

Prereq: ACC 601 and 602 or one year of introductory accounting principles. No credit for undergraduate majors in accounting. The concepts of financial reporting. The application of accounting theories, principles, and standards in fitting financial data within this conceptual framework, with an emphasis on asset valuation and income measurement.

711. Financial Reporting Framework II. Cr. 3

Prereq: ACC 710 and consent of adviser. Continuation of ACC 710 with an emphasis on equities in corporation assets and the flow of

funds.

712. Tax Problems in Business Affairs. Cr. 3

Prereq: ACC 710 and consent of adviser. Application of tax laws and regulations to the business affairs of corporations and individuals.

713. Cost Accounting, Control and Analysis. Cr. 3

Prereq: ACC 710 and consent of adviser. Theoretical framework of cost accounting related to the decision-making and control processes of management. Advanced standard cost accounting. The learning curve model. Internal transfer-pricing models. Make or buy and lease or buy decision models.

714. Advanced Tax Problems. Cr. 3

Prereq: ACC 517 or 712 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.

715. Information Systems for Planning and Control. Cr. 3

Prereq: ACC 710 and consent of adviser. Readings and case studies concerning the information function within an organization. Internal control and the organization structure. The systems approach to integrating the information systems of an organization's functional sub-units.

716. Current Accounting Issues. Cr. 3

Prereq: ACC 710 and consent of adviser. Current accounting issues in the areas of financial and managerial accounting. Contemporary trends challenging accountants, investors, managers, and other interested parties.

717. International Accounting. Cr. 3

Prereq: ACC 711 and consent of adviser. Consolidated statements for multinational corporations. Foreign currency translations; accounting for inflation; transnational financial reporting problems.

718. Auditing. Cr. 3

Prereq: ACC 710 and 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.

719. Advanced Auditing. Cr. 3

Prereq: ACC 514 or 718 and consent of adviser. 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.

751. Data Base Systems. Cr. 3

Prereq: ACC 710, CSC 100 or CSC 501, and consent of adviser. The use of data base management techniques within accounting and management information systems, including a study of internal control in a data base management environment.

752. Information Systems Design. Cr. 3

Prereq: ACC 710; CSC 100 or CSC 501; consent of adviser. Principles of developing computer-based accounting and management information systems, emphasizing the phases of the life cycle of information systems projects.

787. Seminar in Managerial Accounting. Cr. 3

Prereq: ACC 516 or 713 or consent of instructor; consent of adviser. Selected topics on managerial accounting.

788. Seminar in the Development of Accounting Thought. Cr. 3

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

789. Seminar in Contemporary Financial Accounting. Cr. 3
Prereq: consent of instructor and adviser. Selected contemporary problems in accounting theory in the context of public reporting.

795. Directed Study in Accounting. Cr. 1-5(Max. 5)
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 under the supervision of a member of the graduate faculty in areas of special interest to student and faculty member.

799. Master's Essay Direction. Cr. 3
Prereq: consent of adviser.

899. Master's Thesis Research and Direction. Cr. 1-8(8 req.)
Prereq: consent of adviser.

Finance and Business Economics (FBE)

Undergraduate Courses

405. Business Economics. Cr. 3
Methods employed by firms in utilizing business information. Applications to price, production, and plant expansion decisions, and the formation of business policies.

406. Current Business Conditions. Cr. 3
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.

450. (MGT 450) Business Administration Co-op Assignment. (ACC 450). Cr. 0
Offered for S and U grades only. No credit toward degree. Must be elected by Professional Development Co-operative Program students during work semester. Opportunity to put theory into practice on the job. Students will normally be assigned to cooperating business organizations for internship periods of one semester.

490. Directed Study in Finance and Business Economics. Cr. 1-3
Prereq: 2.75 cumulative honor point average to be eligible; written approval on proposal form prior to registration, consent of chairperson of department in which student is majoring. Advanced readings and research or tutorial under the supervision of a faculty member in areas of special interest to student and faculty member.

520. Risk Management. Cr. 3
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.

523. Financial Markets, Institutions and Securities. Cr. 3
Prereq: ECO 102; ACC 302 recommended. The framework of our financial system. The role of securities, interest rates, financial markets and intermediaries in promoting savings, investments and other economic goals. The function of the money, capital and equity markets in channeling funds to business.

524. Business and the Public Interest. Cr. 3
The role of business in American capitalism, and the relationship of business to government, labor, consumers, investors, and other segments of society.

529. Business Finance. Cr. 3
Prereq: ECO 102, ACC 302, and ECO 410 or equiv. Principles of financial administration, with applications to problems of financial analysis, control, and planning by firms under changing economic conditions.

530. Quantitative Methods I: Probability and Statistical Inferences. Cr. 3
Prereq: one course in college mathematics. No business or free elective credit. Repeat of ECO 410, STA 102 or equiv. Measures of central tendency and dispersion. Introduction to probability; normal, binomial, exponential, and Poisson distributions. Statistical inference and sampling methods.

540. Quantitative Methods II: Statistical Methods. Cr. 3
Prereq: FBE 530 or ECO 410 or equiv. Must be satisfactorily completed in first sixteen credits after admission to the School of Business Administration. Uses of statistical techniques in business. Topics include: sampling, hypothesis testing, confidence interval estimation, regression, analysis of variance and chi-square tests. Application to accounting, market research, finance, production and forecasting. Computer techniques.

621. The Stock Market and Investments. Cr. 3
Prereq: FBE 523 and 540 or equiv. 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. FBE 529 and ECO 410 recommended as background.

622. Portfolio Management. Cr. 3
Prereq: FBE 540 and 621. Principles of portfolio construction and administration applicable to various institutions including banks, insurance companies, mutual funds, and pension trusts.

627. Advanced Business Finance. Cr. 3
Prereq: FBE 529 and 540. Working capital management, capital budgeting, valuation theories, and long term financing policies. Emphasis on role of financial management in maximizing the value of the firm.

630. Working Capital Management. Cr. 3
Prereq: FBE 529 and 540 or equiv. Advanced financial management principles applied to the administration of corporate cash, marketable securities, receivables, inventory, short-term financing, payables and bank relationships.

631. Capital Budgeting and Long Term Financing. Cr. 3
Prereq: FBE 523, 529 and 540 or equiv. Advanced financial principles applied to the administration of corporate capital budgeting, debt management, cost of capital, dividend policy, lease financing, merger valuation and reorganization.

632. Principles of International Business Finance. Cr. 3
Prereq: FBE 529. Financial management of firms dealing in international money and capital markets. Analysis of international investments, currency problems and financial aspects of exporting and importing functions.

633. Bank Management. Cr. 3
Prereq: FBE 529 and 540 or equiv. Analysis of the functional areas of management of banks and related financial institutions, including deposits, cash, loans and asset accounts. Discussion of current topics including liquidity, capital adequacy, electronic fund transfers and mortgages.

634. Seminar in Financial Markets and Investments. Cr. 3
Prereq: FBE 622. Advanced analysis of security pricing and portfolio construction and administration. Analysis of spot, future and options markets for financial securities and for commodities and their instruments.

635. Real Estate Finance. Cr. 3

Prereq: FBE 540 or equiv. Analysis of methods and problems of transferring real property. Examination and analysis of financing methods for real estate transactions and real estate investment strategies.

695. Teachers' Workshop in Business and Economics. Cr. 1-12

Prereq: teaching certificate; consent of dean or designee. Not open to students in the School of Business Administration. Communication and implementation of business and economic concepts for teachers. Lectures, discussions and workshops on topics of current interest.

Graduate Courses

604. Financial Administration. Cr. 2

Prereq: ACC 601 or equiv.; admission to a graduate program. Methods of financial administration, including the management of funds, financial planning, and policies of financial institutions.

608. Economic Environment and Business Behavior. Cr. 3

Prereq: admission to a graduate program. Current economic conditions and their influences on business. Analyses and interpretations of government policies and practices.

609. Quantitative Analysis: Theory and Application. Cr. 3

Prereq: one course in college mathematics; admission to a graduate program. 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.

701. Quantitative Methods Applied to Business Decisions. Cr. 3

Prereq: completion of all foundation requirements. Material fee as indicated in *Schedule of Classes*. Selected applications of quantitative tools and techniques, including optimization methods and decision analysis, to business problems. Computer utilization.

709. Money and Capital Markets. Cr. 3

Prereq: FBE 608, 609, 604 or equiv., and consent of adviser. Financial intermediaries; the capital markets; the money market and interest rates.

721. Managerial Finance. Cr. 3

Prereq: FBE 604 or equiv. No credit for undergraduate majors in finance. Study of the principles of finance with applications focusing primarily on corporations. Coverage includes analysis of problems in working capital management, capital budgeting, valuation theories, and dividend and long term financing policies.

722. Advanced Managerial Finance. Cr. 3

Prereq: FBE 721 and consent of adviser. Advanced topics in managerial finance, including leasing, merger valuation, reorganization, interactions of investment and financing decisions, and critical evaluation of alternative firm valuation theories.

723. Investment Policies. Cr. 3

Prereq: FBE 701, 721 and consent of adviser. The key determinants of security prices under changing economic conditions. Theories, strategies and techniques for selection, timing, and diversification; methods of portfolio construction and administration.

748. (MKT 748) Pricing Policies and Practices. Cr. 3

Prereq: MKT 703, FBE 782 and 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.

756. Managerial Forecasting Techniques. Cr. 3

Prereq: FBE 701 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.

779. Mathematical Methods in Administration. Cr. 3

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.

780. Seminar in Business Administration. Cr. 3

Prereq: consent of graduate adviser.

782. Managerial Economics. Cr. 3

Prereq: FBE 608 or equiv. No credit for undergraduate majors in business economics. Economic aspects of corporate management. Business forecasting; production, inventory, and cost control; pricing policies and practices; governmental regulation of business.

783. Business Conditions Analysis. Cr. 3

Prereq: FBE 782 and consent of adviser. Analysis of current economic conditions and their effects on business. Governmental policies discussed and evaluated.

784. Statistical Methods for Business Decisions. Cr. 3

Prereq: FBE 701 and consent of adviser. Use of statistics for business decision making. Statistical inference, estimation, sampling techniques, classical and Bayesian decision theory and methods applied to practical business problems.

785. Seminar in Business Economics. Cr. 3

Prereq: FBE 782 and consent of adviser. Current topics in business economics as they relate to finance, marketing, administrative control, and other areas of business.

786. Seminar in Finance. Cr. 3

Prereq: FBE 722 or 723 and consent of adviser. Selected topics of current interest in the field of finance.

787. International Business Finance. Cr. 3

Prereq: FBE 721 and 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.

788. Problems in International Business. Cr. 3

Prereq: FBE 721 and consent of adviser. Topics of current interest in international marketing; structure and control of multinational 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.

789. Seminar in International Business. Cr. 3

Prereq: FBE 721 and consent of adviser. Topics of current interest.

**795. Directed Study in Finance and Business Economics.
Cr. 1-3(Max. 5)**

Prereq: written 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.

799. Master's Essay Direction. Cr. 3

Prereq: consent of adviser.

899. Master's Thesis Research and Direction. Cr. 1-8(8 req.)

Prereq: consent of adviser.

Management (MGT)

Undergraduate Courses

160. The Dynamics of Business. Cr. 3

No credit after MGT 559, MKT 530, or FBE 529. 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); responses to pressures from internal and external environments.

400. Internship in Management. Cr. 1-5

Prereq: consent of internship committee. Provides 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 semester.

450. Business Administration Co-op Assignment. (ACC 450) (FBE 450) (MKT 450). Cr. 0

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

490. Directed Study in Management. Cr. 1-3(Max. 6)

Prereq: 2.75 cumulative h.p.a.; written approval on proposal form prior to registration; consent of major chairperson. Advanced readings and research or tutorial under the supervision of a faculty member in areas of special interest to student and faculty member.

559. Introduction to Management. Cr. 3

Prereq: one course each in psychology and sociology. No graduate credit. Introduction to management theory and practice. The application of theory to typical management problems in planning and achieving organizational goals. Additional topics include interpersonal communication, motivation, supervision and management of groups and departments.

560. Introduction to Production Management. Cr. 3

Prereq: MGT 559, ECO 410 or equiv., CSC 100 or consent of instructor. No graduate credit. Analysis of the production system. Identification of problems in a production system and solution of problems. Topics include: forecasting, production planning and scheduling, quality control, cost control and inventory control.

561. Management Decision Making. Cr. 3

Prereq: MGT 559; FBE 530 or ECO 520 or consent of instructor. Analysis of managerial decision processes and the nature of decisions. Examination of conditions under which decisions are made. Factors affecting decision problems. The role of quantitative methods in the analysis of decision problems.

566. Small Business Management. Cr. 3

Prereq: MGT 559 or consent of instructor. Special problems and practices relating to the organization and management of small retail, service, wholesale, and manufacturing businesses.

567. Small Business Management Problems. Cr. 3

Prereq: MGT 566 or consent of instructor. Field and library research into the operating problems of selected small businesses.

568. Creating a Small Business. Cr. 3

Prereq: MGT 566, 567 or consent of instructor. Specific problems related to organizing a small business; investigation into the feasibility of individually selected small businesses.

569. Management of Non-Profit Organizations. Cr. 3

Prereq: MGT 559 or consent of instructor. Special problems and practices relating to the management of non-profit organizations. Topics include planning, evaluation, tax-exempt status, fund-raising, public relations, and organizational structure.

570. Personnel Administration. Cr. 3

Prereq: MGT 559 or consent of instructor. Theory, policies, procedures and practices in employment relationships. Topics include: job design, employment planning, selection, training and development, performance appraisal, compensation; labor relations and affirmative action within the legal parameters set forth by the Federal and state governments.

574. Collective Bargaining. Cr. 3

Prereq: MGT 559 or consent of instructor. A basic course in labor relations examining the development of union-management relationships; the philosophy and practice of collective bargaining. A bargaining situation is normally used.

576. Office Administration. Cr. 3

Prereq: MGT 559 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.

577. Advanced Personnel Management. Cr. 3

Prereq: MGT 570 or consent of instructor. In-depth study of selected areas within the personnel function such as selection, performance appraisal and compensation; emphasis on application of human resource management theory. Specific personnel techniques discussed and utilized.

589. Social and Political Influences on Business. Cr. 3

Prereq: MGT 559 or consent of instructor. No credit after former B A 0590 or former B A 589. Influence of the external environment on the corporation. Rules and responsibilities of business persons; corporate governance; assessment of social performance; contemporary issues.

608. Labor Relations in the Public Sector. Cr. 3

Prereq: MGT 574 or consent of instructor. Investigation of management-employee relations, unionization and collective negotiations in the public sector.

660. Nature of the Organization. Cr. 3

Prereq: MGT 559 or consent of instructor. The design and functioning of organizations. Types of formal organizational structures, relationships between departments, technology, authority, responsibility and decision-making at all management levels, environmental and international relationships, and organizational effectiveness.

661. Corporate Strategic Planning. Cr. 3

Prereq: MGT 660 or consent of instructor. Theory and method of corporate strategic planning. An analysis of the processes of strategic search, appraisal, choice and implementation. Examination of strategic planning techniques including model building, MBO, Delphi, forecasting and assessment.

662. Behavior in Organizations. Cr. 3

Prereq: MGT 660 or consent of instructor. Dynamics of behavior in organizational settings, at the individual, interpersonal, group and intergroup levels. A problem-solving approach to management with emphasis on interpersonal and group skills. Topics include: motivation, communication, leadership, conflict, organizational change, group functions and processes.

664. Organizational Decision Making. Cr. 3

Prereq: MGT 561, 660, or consent of instructor. Study of behavioral processes which affect how managers make and carry out decisions in organizational settings. Problems encountered in making decisions at the individual, group and organizational level are studied along with related approaches to improve decision making.

667. Models in Operations Management I. Cr. 3

Prereq: MGT 560 or consent of instructor. Analysis of problems in production operations management. Application of quantitative models to the solution of these problems. Topics covered are decision analysis, aggregate systems, inventory control, material requirements planning and PERT and CPM.

674. Administering the Labor Agreement. Cr. 3

Prereq: MGT 574 or consent of instructor. Interpretation, application, and enforcement of labor agreements. Grievance processing and arbitration. Alternative methods of resolving contract disputes.

678. Current Issues in Employee Relations. Cr. 3

Prereq: nine credits in personnel and industrial relations. A terminal course investigating contemporary personnel, industrial relations, and manpower issues and problems in industrial relations and human resource management.

689. Business Policy. Cr. 3

No credit after former B A 0690 or former B A 689. To be taken after completion of core curriculum and as one of the last five courses toward bachelor's degree. Development of conceptual and administrative skills required of top-level managers in their strategy determination, policy formulation, and policy implementation roles. Managing the firm as an integrated unit under conditions of uncertainty. Integration of concepts and skills covered in previous specialized courses.

695. Seminar in Management. Cr. 3

Prereq: MGT 561, 570, 662 or consent of instructor. Selected topics in the management and organizational sciences.

696. Models in Operations Management II. Cr. 3

Prereq: MGT 560, FBE 540 or consent of instructor. Analysis of problems in production operations management and their solutions. Topics include quality control, statistical control models, aggregate scheduling and facility layout planning.

Graduate Courses

600. Introduction to Operations Management. Cr. 2

Prereq: graduate standing; CSC 100, FBE 609. Introduction to concepts, models and techniques as they apply to the solution of problems in production operations management. Topics include product planning, forecasting, facility layout analysis, aggregate planning, production scheduling, inventory control, material requirements planning, PERT, and CPM.

606. The Process of Management. Cr. 2

Prereq: graduate standing. Study of organization theory, behavior, and interpersonal communications.

706. Management and the Organization. Cr. 3

Prereq: MGT 606 and consent of adviser. Examination of macro and micro aspects of organizational management; contingency approaches to organizational design, problem solving and decision making, and management of individual, group, and intergroup behavior in organizations.

751. Operations Management I. Cr. 3

Prereq: differential and integral calculus; knowledge of computer

language; consent of adviser. Linear programming and its application. Topics include simplex and revised simplex methods, duality, sensitivity and post-optimality analysis, transportation, assignment and branch and bound algorithms and integer programming.

753. Operations Management II. Cr. 3

Prereq: differential and integral calculus; knowledge of computer language; and consent of adviser. Nonlinear and stochastic models. Topics include: decision analysis, dynamic programming, nonlinear programming, networks, inventory models, and queueing and simulation models.

754. Seminar in Operations Management. Cr. 3

Prereq: differential and integral calculus; knowledge of computer language; MGT 751, 753 and consent of adviser. Selected topics in operations management.

761. Human Behavior in Organizations. Cr. 3

Prereq: MGT 706 and consent of adviser. In-depth treatment of topics in individual and group behavior in organizations. Insight into the problems of effective leadership, communication, problem solving, decision making, interpersonal and intergroup relations. An experiential and skill development approach.

762. Complex Organizations. Cr. 3

Prereq: MGT 706 and consent of adviser. The formal structure and processes in complex organizations: departmentation, decentralization, authority and power, relationships between groups, organizational design and evaluation. Factors affecting organizational design, adaptation to environments, and designing effective decision-making systems.

763. Organizational Change and Development. Cr. 3

Prereq: MGT 706 and consent of adviser. Theory, methods, and skills involved in designing and implementing planned change in organizations toward improving organizational adaptiveness and effectiveness: examination of the change process, and alternative intervention strategies including techno-structural changes, development of interpersonal skills and team development.

764. Management of Human Resources. Cr. 3

Prereq: MGT 706 and consent of adviser. Theory, policy, research and process issues in employment relationships. The specific personnel practices of planning, selecting, employee development and appraisal, compensation and labor relations examined as they relate to conceptual and pragmatic views of management or employee behavior.

766. Entrepreneurial Management. Cr. 3

Prereq: MGT 706 and consent of adviser. Creating, financing, marketing and management of the operations of the small business enterprise through field and library research.

768. Executive Decision Making. Cr. 3

Prereq: MGT 706 and consent of adviser. Analysis of the problems and potential solution techniques available to managers in top-level decision making. Topics include the development of a decision framework, the impact of the environment on strategy formulation; levels of managerial analysis for decision making, the use of behavioral and quantitative models, and issues of complexity and uncertainty.

769. Executive Development. Cr. 3

Prereq: MGT 706 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.

770. American Business Values. Cr. 3

Prereq: MGT 774 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.

772. Advanced Personnel Administration. Cr. 3
Prereq: MGT 764 and consent of adviser. Analysis and discussion of current issues and topics in the personnel area; examination of changing socioeconomic and legal environments as they affect the personnel/industrial relations manager.

774. Business and Contemporary Society. Cr. 3
No credit after former B A 774. Role of the corporation in modern society. External social, political, legal, economic and technological influences on the business firm. Current issues: employment discrimination, pollution, energy, consumerism and the multinational corporation. Examination of ethical standards and values of business persons.

775. Labor Relations and Collective Bargaining. Cr. 3
Forces which affect the character and quality of union-management relationships. Formulating the labor contract; mediation; analysis of relationships at the work unit level and more complex levels and their influence on contract negotiations and grievances in all kinds of work organizations. A bargaining situation is generally used.

777. Union Contract Administration. Cr. 3
Prereq: MGT 775 and consent of adviser. Daily union-management relations. Grievance handling and arbitration. The causes of labor-management conflicts under a union contract.

789. Seminar in Business Policy. Cr. 3
No credit after former B A 789 or former B A 0790. To be taken in final twelve hours of graduate program and after all core courses. Policy determination and administrative processes from the perspective of the top level manager. Integration of business and administrative concepts studied in earlier courses, enabling students to formulate and implement overall organizational strategy within the context of a dynamic and uncertain external environment.

795. Directed Study in Management. Cr. 1-3(Max. 5)
Prereq: written 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 under the supervision of a member of the graduate faculty in areas of special interest to student and faculty member.

799. Master's Essay Direction. Cr. 3
Prereq: consent of adviser.

800. Seminar in Management. Cr. 3
Prereq: MGT 706 and consent of adviser. Selected topics in the management and organizational sciences.

898. Industrial Relations and Public Policy. Cr. 3
Prereq: two courses in industrial relations and consent of adviser. An advanced course in industrial relations. Examination of public policy and current issues in industrial relations, such as: employment discrimination, OSHA, new techniques in conflict resolution, and changing labor law.

899. Master's Thesis Research and Direction. Cr. 1-3(8 req.)
Prereq: consent of adviser.

Marketing (MKT)

Undergraduate Courses

450. (MGT 450) Business Administration Co-op Assignment. (ACC 450) (FBE 450). Cr. 0

Offered for, S and U grades only. No credit toward degree. Must be elected by Professional Development Co-operative Program students during work semester. Opportunity to put theory into practice on the job. Students will normally be assigned to cooperating business organizations for internship periods of one semester.

490. Directed Study in Marketing. Cr. 1-3(Max. 5)
Prereq: 2.75 cumulative h.p.a. to be eligible; written approval on proposal form prior to registration; consent of chairperson of student's major department. Advanced readings and research or tutorial under the supervision of a faculty member in areas of special interest to student and faculty member.

530. Marketing Management. (Dsc: 1.5; Lct: 1.5). Cr. 3
Prereq: ECO 102. No graduate credit. Planning the marketing program within social, economic and legal environments. Market segmentation and behavior, market systems and strategy, international marketing.

533. Business Communication. Cr. 3
Prereq: successful completion of English Proficiency Examination in Composition. Open only to students admitted to the School of Business Administration. Fundamental principles and skills of business communication, both written and oral. Systematic procedures for designing professional documents, especially reports, memos, and letters.

535. Marketing Analysis and Decision Making. Cr. 3
Prereq: MKT 530 and FBE 540. Application of marketing principles in the analysis of problems in the areas of marketing objectives, and product, price, promotion and distribution strategy.

545. Consumer Behavior. Cr. 3
Prereq: MKT 530. Concepts and theories to explain consumer and organizational buyer behavior. Application of this understanding to marketing management and public policy decision making.

547. Industrial Marketing. Cr. 3
Prereq: MKT 530 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.

548. Market Forecasting. Cr. 3
Prereq: MKT 530 and FBE 540. Management of the market forecasting operation and selected forecasting techniques and procedures. Uses of forecasting in budgeting, product line decisions, sales activity, promotional mix, inventories, consumer demand, pricing and channel decisions. Simple and advanced time-series, Box-Jenkins, adaptive models and regression models. Managerial decision making in developing the firm's forecasting system.

549. Principles of Advertising. Cr. 3
Prereq: MKT 530. Advertising principles relevant to a wide variety of organizations; research, advertising copy, layout; media of advertising; advertising management of departments and agencies; campaign strategy; budgeting, and testing effectiveness.

550. Advertising Copy. Cr. 3
Prereq: MKT 549 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.

551. Advertising Media Planning. Cr. 3

Prereq: MKT 549 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.

560. Transportation and Distribution Management. Cr. 3

Prereq: MKT 530. Management of the movement of raw materials and finished products including the development of transportation strategies and objectives, and the selection of modes and carriers. Emphasis upon the interface of transportation policies with production and marketing plans.

562. Business Logistics. Cr. 3

Prereq: FBE 540 and MKT 530. No credit after MKT 546. Achieving efficient physical flow of goods to fulfill production and marketing objectives through the integration of transportation, inventory management, order processing, warehousing, packaging, materials handling and acquisition.

563. Advanced Business Logistics. Cr. 3

Prereq: MKT 562. Utilization of cases in analysis of problems encountered in the design and operation of a logistics system, both domestic and international.

570. Retail Management. Cr. 3

Prereq: MKT 530. Retailing concepts and problems. Competitive structure, store location, organization, buying, inventory control, sales promotion, pricing, credit policy, customer services, research and franchising.

581. Channels of Distribution. Cr. 3

Prereq: MKT 530. 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.

585. Promotion Strategy. Cr. 3

Prereq: MKT 530. Development of integrated strategies, plans and programs in advertising, personal selling, publicity and promotion, and their implementation in the overall marketing effort.

641. Market Research and Analysis. Cr. 3

Prereq: MKT 530, FBE 540. Methods of gathering and analyzing data which will facilitate the identification and solution of marketing problems. Planning the project, data sources for exploratory and conclusive research. Questionnaire construction, sample design, and design of marketing experiments.

644. Sales Management. Cr. 3

Prereq: MKT 530. Organization and direction of a sales organization including selection, training, compensation, supervision, motivation, budgets, quotas, territories, and sales analysis.

646. Public Relations of Business. Cr. 3

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.

650. International Marketing Management. Cr. 3

Prereq: MKT 530. The sociopolitical-legal-economic environment of international marketing operations, cross-national consumer behavior, international marketing research, forms of international involvement, direct foreign investment; international product, pricing, distribution and promotion policies; world trade patterns, trade policy, multinational corporations and the world economy.

Graduate Courses

603. Marketing Principles and Policies. Cr. 2

Prereq: admission to a graduate program. The marketing system and environment, analyzing marketing opportunities, planning and administering marketing programs, international marketing.

703. Marketing Strategy. Cr. 3

Prereq: MKT 603 or equiv. No credit for undergraduate majors in marketing. Principles and concepts of marketing management. Analysis of the marketing environment, problems and opportunities. Development of objectives, plans and strategies for the marketing function via the case method.

742. Sales Management Problems. Cr. 3

Prereq: MKT 703 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.

743. Advertising Management. Cr. 3

Prereq: MKT 703 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.

745. Business Research and Methodology. Cr. 3

Prereq: MKT 703 and FBE 701 and consent of adviser. An intensive study of the objectives and methodologies of research for business decisions. Course topics include: the scientific method, primary and secondary data sources, research design, reliability and validity, sampling, and applied statistics. Focus on the development of decision-oriented research information for all aspects of a business organization.

746. International Business. Cr. 3

Prereq: MKT 703 and FBE 721 and consent of adviser. World trade, the international sociological, cultural, political, economic, monetary environment of international business. International funds, credits, payments, and exchange controls, balance of payments, international marketing and management strategy formulation. Multinational corporations and host country governments. Common market and public policy issues.

747. Consumer and Industrial Buying Behavior. Cr. 3

Prereq: MKT 703 and consent of adviser. Behavioral theory as it relates to consumer and industrial decision processes. Relevant concepts, theories, and recent research findings are drawn from the fields of marketing, psychology, social psychology, and communications. Examination of consumer and industrial buying practices.

748. Pricing Policies and Practices. (FBE 748). Cr. 3

Prereq: MKT 703, FBE 782 and 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.

762. Business Logistics Management. Cr. 3

Prereq: MKT 703 and FBE 701 and consent of adviser. Introduction to business logistics management integrating materials management and physical distribution through the investigation of transportation, inventory, handling and storage, acquisition, order processing and facility location subsystems.

787. Seminar in Marketing. Cr. 3

Prereq: FBE 701 and MKT 703 and consent of adviser. In-depth

exploration of new and important subjects or techniques in marketing. Topics vary by semester; consult adviser.

795. Directed Study in Marketing. Cr. 1-3(Max. 5)

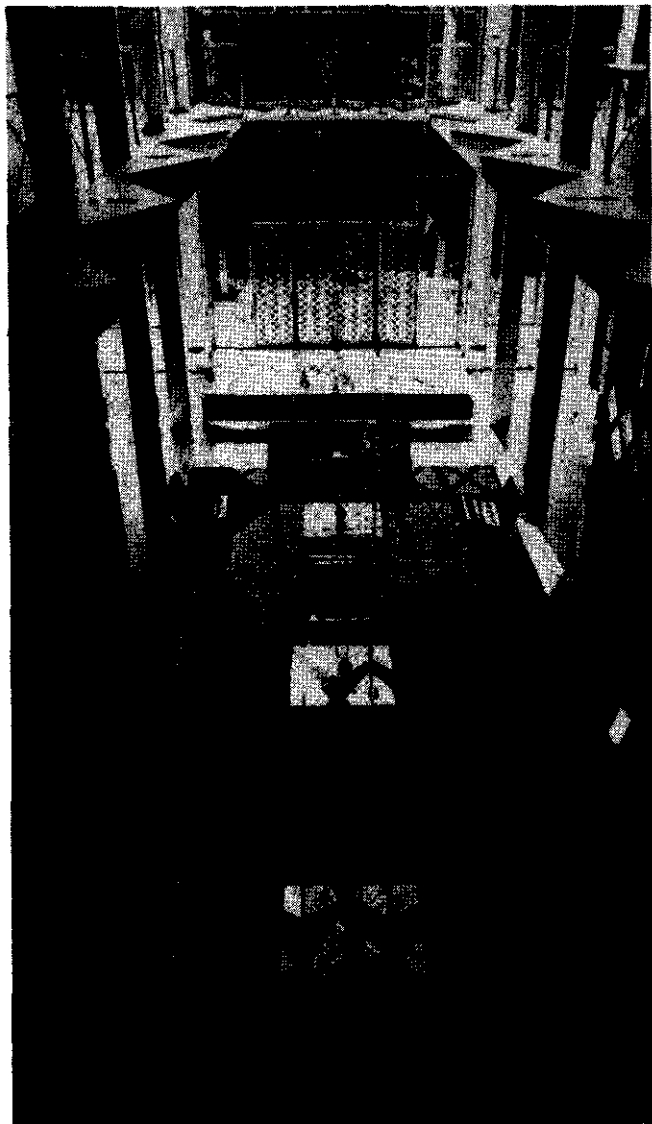
Prereq: written consent of adviser and graduate officer. Approved petition and Authorization for Directed Study must be on file in the Office of Graduate Student Services prior to registration. Advanced independent readings under the supervision of a member of the graduate faculty in areas of special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

799. Master's Essay Direction. Cr. 3

Prereq: consent of adviser.

899. Master's Thesis Research and Direction. Cr. 1-8(8 req.)

Prereq: consent of adviser.



FACULTY

Dean: John G. Maurer

Professors

Gerald Alvin, Bruce E. DeSpelder, Victor C. Doherty, Edwin J. Forsythe, Louis Hough, John G. Maurer, Milton H. Spencer

Associate Professors

Robert Allison, Richard C. Becherer, Robert C. Bushnell, Donald E. Gorton, Edwin F. Harris, Mary S. Irwin, David E. Kasunic, Leon R. Klein, James E. Martin, James P. McGuigan, Fred W. Morgan, Jr., Harvey Nussbaum, Barbara A. Price, Edward A. Riordan, Louis L. Stern, Myles S. Stern, Fred P. Unruh, Harish L. Verma, David I. Verway, Frank L. Voorheis

Assistant Professors

Ishmael P. Akaah, Omar M. Benkato, Francis J. Brown, Harry Cagle, Richard E. Charlton, Bruce H. Drake, Jone R. Goldstein, Donna Hansen, Shantaram P. Hegde, David A. Horne, Donald J. Houtakker, George C. Jackson, Dharam P. Kapil, Chan P. Kook, Pradeep K. Korgaonkar, K. S. Krishnan, James T. Low, John M. Magenau, Thomas J. Naughton, Saroj Parasuraman, William W. Poffenberger, Kamal V. Pradhan, Kelly R. Price, Jack D. Schroeder, Bernard A. Shinkel, Ronnie Silverblatt, Flumo Y. Stevens, William H. Volz, Philip J. Wydick, Attila Yaprak

Lecturers

Kathryn M. Augustin, Dana I. Avrunin, Louis E. Bonanni, Nathan Borofsky, William E. Burrell, Thomas J. Buseck, Donald F. Condit, Chalmers L. Goyert, George W. Gregory, Joseph L. Harris, Robert D. Honigman, Thomas F. Jakubowski, Edward F. King, Gerald S. Kruse, Gary B. McCombs, Larry G. Mumford, Paul E. Piellusch, Lawrence M. Richard, Janice M. Tessier, John C. Wilson

Adjunct Faculty

Robert Agne

School of Business Administration Directory

- Dean Room 226, Prentis Building; 577-4501
- Assistant Dean
 - for Administrative Affairs.. Room 226, Prentis Building; 577-4502
 - Assistant to the Dean 226 Prentis Building; 577-4500
- Director,
 - Bureau of Business Research..... 209 Prentis Building; 577-4213
- Director,
 - Professional Development Programs . Room 103, Prentis Building; 577-4353
- Director of
 - Student Services.... Room 199, Criminal Justice Building; 577-4510
- Department of Accounting..... Room 200, Prentis Building; 577-4530
- Department of Finance
 - and Business Economics Room 328, Prentis Building; 577-4520
- Department
 - of Management and Organization Sciences 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 numerous 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 fifty-three semester credits 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 fifty-three semester credits 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, 3950 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 5.

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 fifty-three semester credits) at an accredited institution, students who intend to teach should 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 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, 503 Manoojian, 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 2.5 or above. Students with honor point averages between 2.25 and 2.49 may be considered for conditional admission. (Counselor Education program requires a 2.2 minimum honor point average.) 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 prior to admission to the College of Education.

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 semester. Application forms are available in the office of the Division of Academic Services, 489 Education Building.

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 four-year curricula described later in this bulletin. A minimum of 124 semester hours of work must be completed with scholarship standing of C or better. The student must meet all course requirements of his/her curriculum, including prerequisites and remedial courses if stipulated. The course elections should be distributed to give the student a minimum of forty credits in general education, two credits in physical education, two credits in hygiene, a minimum of twenty 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 twelve 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 eight college credits in the same language beyond the freshman level.

Bachelor of Science in Recreation and Park Services

This degree is granted 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 179) 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 are applicable to the student's curriculum.

The degree requirement of two semester credits in physical education may be waived for students transferring to the College with two or more years of credit. If such transfer students were required to take physical education, but without credit, they may be allowed up to two credits toward graduation from the College.

In general, a maximum of fifteen 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 thirty credits as a registered student in the College.

During the senior year, not more than ten transfer credits may be accepted. The student must be in residence during the semester in which he/she 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 fifteen credits must be completed at Wayne.²

Choice of Curriculum

Before selecting a curriculum, the student should obtain the best information available concerning the requirements for success in the different teaching fields and also the possibilities of placement. He/she should, of course, also consider his/her own interests 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

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.

² When a student already holds one type of certificate and is working on another, this residence requirement may be lowered.

specialized work in the freshman year. The selection of a curriculum and the election of courses from semester to semester 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
- Bilingual-Bicultural Education
- Business Education
- Distributive Education
- Elementary Education
- English Education—Secondary
- Family Life Education
- Foreign Language Education
- Health Occupations Education
- Industrial Education
- Mathematics Education
- Nursery School Education
- Science Education
- Social Studies Education—Secondary
- Special Education
 - Multiply Impaired
 - Speech Pathology⁴
 - Visually Impaired
- Special Education and Family Life Education
- Special Education and Business Education
- Special Education and Industrial Education

DIVISION OF THEORETICAL AND BEHAVIORAL FOUNDATIONS

- Guidance and Counseling Services

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)

GRADUATE PROGRAMS

For complete information regarding graduate rules and regulations, students should consult the Graduate School section of this bulletin, beginning on page 18. 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 School 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:

- Bilingual-Bicultural Education
- Business Education
- Distributive Education
- Elementary Education
- English Education (Secondary)
- Family Life Education
- Industrial Education
- Health Occupations Education
- Mathematics Education (Junior High)
- Mathematics Education (Secondary)
- Science Education (Elementary and Secondary)
- Social Studies Education (Secondary)

Credit Requirements for the various M.A.T. programs range from a minimum of forty to a maximum of fifty-two credits, depending upon the applicant's background in his/her 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, counselor education, recreation and park services, sports administration, or vocational rehabilitation counseling, 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 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.

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 176.

² This is a degree program only and does not lead to teacher certification.

³ Refer to page 77 for curriculum information regarding school library preparation at the undergraduate level.

⁴ A master's degree is required for certification.

Areas of Concentration

DIVISION OF ADMINISTRATIVE AND ORGANIZATIONAL STUDIES

Educational Leadership
Instructional Technology

DIVISION OF HEALTH AND PHYSICAL EDUCATION¹

Health Education
Physical Education

DIVISION OF TEACHER EDUCATION

Adult and Continuing Education
Art Education
Bilingual-Bicultural Education
Business Education
Distributive Education
Elementary Education
Elementary Reading
English Education (Secondary)
Family Life Education
Foreign Language Education (Secondary)
Industrial Education
Mathematics Education
Preschool and Parent Education
Science Education (Elementary and Secondary)
Secondary Curriculum and Instruction
Secondary School Reading
Social Studies Education (Secondary)
Special Education

DIVISION OF THEORETICAL AND BEHAVIORAL FOUNDATIONS

Evaluation and Research
Counseling
History and Philosophy of Education
Educational Psychology
Educational Sociology

— General Requirements

A minimum of thirty credits is required for this degree under Plans A, B, or C:

Plan A: Twenty-two credits of course work, plus eight credits for the terminal seminar and thesis.

Plan B: Twenty-seven credits of course work, plus three credits for the terminal seminar and essay.

Plan C: Twenty-seven credits of course work, plus three credits for the terminal seminar and project.

Specialization Sequence (major): A minimum of eight credits in the specialization as determined by the area, in addition to the terminal seminar and thesis, essay or project is required.

General Professional Sequence: At least six credits are required in educational foundation (core) courses. The student must complete one course from each of the three areas chosen from those listed below. Courses within a student's area of specialization cannot be used to satisfy this requirement.

Educational Administration	EDA 760
Educational Psychology	One of the following: EDP 541, 545, 548, 631, 635, 723, 735, or 738
Educational Sociology	EDS 763 or 765
Evaluation and Research	EER 761

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 179) and consult with an adviser in that Division.

Counseling	CEB-678
History and Philosophy of Education	One of the following: EHP 760, 762, 863, 768, 865, or 867

Electives: A minimum of six credits is recommended in course work outside the specialization and core sequences. The purpose of elective courses is to provide breadth to the student's master program.

Plan of Work: After consultation with the adviser, the master's applicant prepares an outline of the 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 eight 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 term in which the applicant completes ten 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 or she plans to specialize.

Master of Science in Library Science

For specific requirements for this degree, see page 76. /

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 thirty 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 thirty credits of graduate study beyond the master's degree.

Areas of Concentration

DIVISION OF ADMINISTRATION AND ORGANIZATIONAL STUDIES

Elementary Administration and Supervision
General Administration and Supervision
Instructional Technology
Secondary Administration and Supervision
Special Education (Administration)

DIVISION OF TEACHER EDUCATION

Elementary Education Curriculum and Instruction
English Education (Secondary)
Mathematics Education
Reading
Science Education
Secondary Curriculum and Instruction
Social Studies Education
Special Education
Vocational and Applied Arts Education

DIVISION OF THEORETICAL AND BEHAVIORAL FOUNDATIONS

Educational Sociology

Counseling

School and Community Psychology

Vocational Rehabilitation Counseling

For information on the Specialist Certificate Program in Library Science, see page 77.

— 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 adapted to the professional needs of the students.
2. The *Plan of Work* is developed by the student with the help of his/her adviser.
3. A *Plan of Work* for each student must be approved by the adviser and filed with the Graduate Officer, 489 Education Building, before six 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 ten semester 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 six semester 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 School 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 semester 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/her 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 semester 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 degree 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.

4. Successful completion of a written examination evaluated on writing ability and when deemed appropriate by the program area, knowledge of the field.

5. Recommendation for admission from an interview committee.

— Admission Procedures

Application: Students who have not been formally admitted to the Graduate School 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 semester 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 must 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 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/her 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 ADMINISTRATIVE AND ORGANIZATIONAL STUDIES

- Elementary School Administration and Supervision
- General Educational Administration and Supervision
- Higher Education
 - Adult and Continuing Education
- Instructional Technology
- Secondary School Administration and Supervision
- Special Education (Administration)

DIVISION OF TEACHER EDUCATION

- Curriculum and Instruction—with emphases in
 - Bilingual-Bicultural Education*
 - Elementary Curriculum and Instruction
 - K-12 Curriculum
 - Science Education (Elementary and Secondary)
 - Secondary English Education
 - Secondary Foreign Language Education
 - Mathematics Education
 - Secondary Social Studies Education
- Reading*
- Special Education
- Vocational and Applied Arts Education

DIVISION OF THEORETICAL AND BEHAVIORAL FOUNDATIONS

- Educational Psychology
- Educational Sociology
- Evaluation and Research

* Doctor of Education (Ed.D.) degree only.

Counseling
History and Philosophy of Education

COLLEGE TEACHING IN DIVISIONAL AREAS OF GENERAL EDUCATION*

Humanities
Science
Social Science

— Selection of Adviser and Advisory Committee

For the first semester of enrollment, the student may be advised by the Graduate Officer. All admitted students must have an adviser identified by the end of the first semester after formal admission.

The adviser acts as the chairperson of the student's doctoral committee, which will consist of a minimum of three members; specifically, the adviser, one member representing the area of the education cognate, and one member representing the field(s) outside of the major area division or the College of Education. The committee must be fully constituted not later than the time the student begins active work on dissertation research or project, or is ready to take the final qualifying examination, whichever comes first. The main function of the doctoral committee is to advise the student in research activities and to administer all final examinations. A moderator will be selected for final oral defense of the dissertation. The moderator must be outside of the division of the student's major area.

— General Requirements

Minimum Credit Requirements: The minimum credit requirement for the Ed.D. degree is 100 credits in graduate work beyond the baccalaureate degree.

Residence: At least one full year of course work, i.e., thirty 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.*

The Ed.D. program requires the completion of ten graduate credits in each of two successive semesters after admission as an Ed.D. applicant. At least six credits in each of the two semesters must be taken in course work. The remaining four credits may be distributed over research, directed study or dissertation. 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 three doctoral seminars from the following foundation areas: educational administration, educational psychology, educational sociology, history, philosophy of education and curriculum and instruction. These seminars are open only to doctoral students.

A minimum of twelve credits is required in course work aimed at developing competence in statistics and research methodologies. At least six 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 six 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 twelve 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 twenty-four. 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 cognate in professional education, consisting of a minimum of twelve credits, is required. Courses included in the cognate will be selected by the student and adviser in conjunction with the cognate field committee member. The cognate must be selected from the areas of concentration listed on page 65.

The doctoral student is required to submit a dissertation on a topic satisfactory to the doctoral committee. Twenty credits are required in dissertation research.

A maximum of twelve 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 think 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 semester in which the student is completing eighteen 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 cognate 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 semester 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 cognate 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. Members of the graduate faculty may attend.

Doctor of Philosophy in Education

The Ph.D. degree is not available in the areas of College Teaching in Divisional Areas of General Education, Curriculum and Instruction—Bilingual-Bicultural Education, and Reading. 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 of ninety credits required beyond the bachelor's degree, a minimum of thirty credits in course work must be completed in the major field, including at least twenty-four credits in the area of concentration. Thirty 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 within the Division in which the student is enrolled. The remaining credits will be assigned to research or course work in accordance with

the needs of the students and the requirements in the field of concentration. At least one cognate is required and must be elected outside of the College. Fifteen 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 School section of this bulletin (pages 18-30) 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 semester 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 semester. 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 semester.

The full-time graduate student's program is limited without exception to a sixteen credit maximum by the Graduate School.

If a significant portion of a student's time is spent in outside work, corresponding adjustments must be made in the 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 credits, 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/she was engaged in authorized University activities. Each instructor, at the beginning of the course, will announce his/her attendance requirements.

Probation and Withdrawal

If, at any time, an undergraduate's scholastic average falls below 2.0, the student is automatically placed on probation. If the general average is acceptable but work in professional courses, especially in student teaching is unsatisfactory, the student 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 progress does not warrant continuance.

Graduate Probationary Admission

An applicant with an honor point average below 2.25 must earn a minimum of eight semester credits in advanced level post-degree courses 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

Undergraduate Programs: Gerald Goodman, Mary Manion

Graduate Programs: Toni Allen, Christine Dykstra, Gloria Fisher

Teacher Certification: Dolores Stevens

Education Placement: James Boyer, Associate Professor
Sharon Woodruff

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 graduate 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. Usually, the counselors act as advisers for in-service teachers working for continuing certification and for those seeking additional certificate endorsements and conversions.

Education Placement

In addition to the above services, the Academic Services Division, houses the Education 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 Education 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 the adviser. The adviser guides the student in the selection of courses and counsels

the student 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 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 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.

ADMINISTRATIVE AND ORGANIZATIONAL STUDIES

Office: 319 Education Building

Division Head: John J. Pietrofesa, Professor

Professors

Gerald W. Boicourt, John W. Childs, Morrel J. Clute, Roger A. DeMont, Joella H. Gipson-Simpson, Harlan L. Hagman, Larry W. Hillman, Wendell M. Hough, R. Duane Peterson, J. Edward Simpkins, Mark H. Smith, Jr., William P. Sosnowsky, Ronald V. Urick.

Associate Professors

Burnis Hall Jr., David M. Pendergast, Albert F. Stähl.

Assistant Professor

Alvin L. Edelson

Purposes

The Division of Administrative and Organizational Studies 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 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

Three program areas, Educational Administration, Higher Education, and Instructional Technology, are under the guidance of this Division. The Master of Education (M.Ed.), Doctor of Education (Ed.D.), and Doctor of Philosophy (Ph.D.) degrees and the Education Specialist (Ed.S.) certificate are offered in Educational Administration and Instructional Technology. Higher Education offers the Doctor of Education and the Doctor of Philosophy degrees. See the preceding section of this bulletin for general degree requirements. For specific program information and requirements, students should consult an appropriate program area adviser.

Educational Administration

This program area offers a choice of the four major areas of specialization listed below to applicants for doctoral degrees or the Education Specialist Certificate. A Master of Education degree program is available in all the major areas except General Administration and Supervision.

General Administration and Supervision: The primary purpose of this major area 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 as well as other educational agencies.

Elementary Administration and Supervision: The major area of elementary administration and supervision develops and enhances the leadership skills required for the effective operation of elementary schools and programs. Career goals, addressed by this major 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 major area of secondary administration and supervision provides preparation and in-service improvement of secondary school administrators and programs: (1) in the function of status leadership in program improvement, and (2) in the techniques of effective school administration.

Special Education Administration: This major area of specialization prepares persons for positions as special education administrators, directors, supervisors, and curriculum resource consultants and specialists. The educational administration program area 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 administration should possess equivalents of full approval in a categorical or ancillary area of special education.

Higher Education

Programs leading to the doctor of education or doctor of philosophy degrees for students who have or seek careers in higher education or education-related positions in business, industry, government, social agencies, and health agencies are offered in this program area. A doctor of education degree program is also offered for college teaching in these areas of general education: humanities, science, and social science.

Instructional Technology

Each degree and certificate program in this area (master of education, education specialist, doctor of education, and doctor of philosophy) is designed to prepare persons for positions in educational institutions, health care and other human services agencies, business, and industrial organizations. Incorporated in these programs are new technologies such as instructional computing and videodisc, so that the graduate will be able to function in the ever-changing roles of instructional technology. These roles include: instructional developer; instructional designer; instructional researcher; media or learning resources consultant; media or learning resources manager; teacher; instructor; trainer.

COURSES OF INSTRUCTION¹

Administrative and Organizational Studies (AOS)

700. Introductory Master's Seminar. Cr. 3

Prereq: admission to a master's degree program in Administrative and Organizational Studies.

¹ See page 633 for interpretation of numbering system, signs and abbreviations

790. Directed Study. Cr. 1-3(Max. 3)

Prereq: written consent of adviser and graduate officer on completed Directed Study Petition prior to registration.

796. Research. Cr. 1-10 (Max. 10)

Prereq: written consent of adviser.

798. Field Study. Cr. 1-14(Max. 14)

Prereq: consent of adviser or supervising instructor. Supervised professional study in field settings.

799. Terminal Master's Seminar and Essay or Project. Cr. 3

Prereq: consent of adviser.

899. Master's Thesis Research and Seminar. Cr. 1-8(8 req.)

Prereq: consent of adviser.

999. Doctoral Dissertation Research and Direction. Cr. 1-16 (Ed.D., 20 req.; Ph.D., 30 req.)

Prereq: consent of adviser. Offered for S and U grades only.

Education Administration (EDA)

660. Introduction to Michigan School Law. Cr. 2

Prereq: senior standing or above. Constitutional and legal factors affecting various educational organizations: local schools, intermediate districts, and state agencies.

760. The Structure of American Education. Cr. 2

Major organizational, financial, administrative, legal and extra-legal problems affecting public education in the United States. Role of the educator in effecting change.

761. Introductory Master's Seminar. Cr. 1-3(Max. 3)

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*.

762. Introduction to Administration. Cr. 3

Conceptual framework of the administrative process; interrelationships between the person, the job, and the organizational setting; the way formal organizations, and political, social and economic factors influence administrative decision making.

763. Administration of Middle and Junior High School. Cr. 3

Modern trends and issues in the curriculum and administration of the junior high school and middle school. Problems of organization, instruction, guidance, orientation, and student activities related to young adolescents.

764. The Elementary School Principalship. Cr. 3

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.

765. Secondary School Administration. Cr. 3

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, school-community relations, and student activities.

766. Administrative Leadership in School-Community Relations. Cr. 3

Prereq: EDA 760. Relationships between the school and the community; special reference to social change, community needs and

the total school program.

767. Economic Issues in Education. Cr. 2

Prereq: EDA 760. Economic issues in education at the local, intermediate, state, and federal levels.

768. Implications of Perception in Human Resource Development. Cr. 3 (Max. 9)

Study of recent formulations in perception; implications for uniqueness, cooperation, specialization, self-concept, freedom, creativity. Emphasis on leadership.

770. Administrative and Organizational Management Strategies for Women in Leadership. Cr. 3

Studies of organizational patterns and strategies for women in leadership, supervisory, and executive positions in schools, higher education, and community agencies.

771. Organization and Administration of Career Education. Cr. 2

Conceptual framework of career education; organization, implementation and administration of programs.

772. Community Education Administration. Cr. 3

Prereq: EDA 760 or consent of instructor. Development, organization, administration and financing of community education.

780. Administration and Supervision of Special Education. Cr. 3

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.

781. The Legal Basis of Mandatory Special Education. Cr. 3

Implications of statutes and regulations undergirding the education of the handicapped; educator's role in implementing, monitoring and influencing state and federal mandates for special education.

788. Advanced Seminar. Cr. 2-6(Max. 8)

Prereq: admission to Ed.S. or doctoral program and consent of adviser. Topics to be announced in *Schedule of Classes*.

798. Field Study in School Plant Planning. Cr. 4

Prereq: consent of instructor. Intensive field work as a member of a staff planning a total building program, a construction project or a building survey. Planning for declining enrollments and new special education laws. Internships may be arranged.

860. Introductory Seminar in Administrative and Organizational Studies. Cr. 2

Prereq: admission to Ed.S. program. Self-appraisal in relationship to the administrative role; theories and practices in educational administration and supervision.

861. Management Planning Techniques. Cr. 4

Selected management planning techniques emphasizing effective utilization of resources in education.

862. School Personnel Administration. Cr. 3

Prereq: EDA 760. Analysis of the personnel function in educational administration.

863. Supervision. Cr. 4

Prereq: teaching experience. Basic issues in motivation, job satisfaction, and goal attainment in educational and human service organizations. Establishing productive supervisor/staff relations. Monitoring employee performance.

864. Organizational Development: Leadership in Directing Organizational Change. Cr. 2

Theories of self-renewal and self-correction and coping with change within personnel systems in organizational structures. Application of

methods and techniques as applied to educational institutions.

865. Staff Development Through In-Service Training.
Cr. 2-6(Max. 6)

Planning, design, and implementation of in-service training and of staff development programs. Establishing conditions for effective training and development activities.

866. Seminar in Simulation of Secondary School Administration.
Cr. 2-6

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.

867. Collective Negotiations. Cr. 3

Development of negotiation in education; features of applicable laws; strategy; analyses of existing contracts; composition of management negotiating team.

868. Seminar in Administrative and Organizational Behavior. Cr. 4
Research and literature related to formal organizations; administrative activity which guides behavior of people in organizations; organizational theory as it relates to group interaction.

869. Legal Issues in the Public Sector. Cr. 3

Prereq: EDA 760. Selected legal problems related to the organization and administration of schools.

870. Alternative Futures in School Administration. Cr. 3

Prereq: admission to Ed.S. or doctoral program. Systematic analysis of future studies with implications for school administration. Principles and methods in the field of futuristics for application in school administration.

871. Leadership in Educational Administration. Cr. 3

Prereq: EDA 760. Principles underlying such areas of administration as education, government, business and social agencies.

872. Development of Alternative Education. Cr. 2

Alternatives to conventional schooling through study of open schools, free schools, schools without walls. Skills necessary to implement alternative education.

875. Planning and Improving School Facilities. Cr. 3

Prereq: EDA 760 or consent of instructor. Writing educational specifications, developing long range building and curriculum programs, improving and modifying existing buildings; planning for declining enrollments and special education.

879. Culminating Seminar in Administration and Supervision.
Cr. 2

Prereq: completion of major portion of the Ed.S. program of studies. 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; career planning.

880. Administration and Supervision of Special Education Resource Consultant Programs. Cr. 2

Role and setting of the special education curriculum resource consultant. Administrative and supervisory requirements and competencies for the program.

881. Clinic/Workshop in Special Education Administration and Supervision. Cr. 2(Max. 4)

Special problems in the administration and supervision of special education.

882. Practicum in Special Education Administration and Supervision. Cr. 2-8

Prereq: written consent of adviser. Offered for 9 and 11 grades only. Supervised field-based experiences or individualized and contracted plan of supervised field study for special education administrators, curriculum resource consultants, supervisors, administrative consultants, and project directors. Multi-level practicum sites arranged.

888. Workshop in Administrative and Organizational Studies.
Cr. 1-10(Max. 10)

Prereq: EDA 760. Practicum in the study of current problems affecting administrative and organizational studies.

890. Internship in Administration. Cr. 2-8(Max. 8)

Prereq: consent of coordinator of administrative internship programs. Supervised experience in administration of public education, government, business, and social agencies. Internship in cooperating school system. Includes seminar.

960. Seminar in Research and Theory of Administration. Cr. 3

Prereq: EDA 762. Research and theory relating to administration. Examination of textbooks, journals, and associations which promote educational administration research; review of the focus of inquiry and methodology for research in educational administration.

979. Doctoral Seminar in Educational Administration. Cr. 2

Prereq: admission to a doctoral program in education; for doctoral majors in other areas of concentration. Seminar, lecture, discussion, field trips. Purposes of education as defined in federal and state constitutions, statutes and administrative rules; interpretation of policy statements of organizations and commissions. Role of the education leader in our society.

Higher Education (HED)

780. Administration of Adult and Continuing Education. Cr. 2

Open only to graduate students. Investigation of processes for building and maintaining sound educational programs; laboratory experience. Determination of individual, organization, and community needs; definition of objectives, establishing policy, selection, and training of leaders, program promotion, interpretation, financing, and evaluation.

850. The American College. Cr. 3

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.

851. Readings in Higher Education. Cr. 3

Analysis and evaluation of selected documents and studies in higher education.

853. History and Philosophy of Higher Education. (EHP 767).
Cr. 3

Prereq: consent of adviser. The growth and development of American higher education including events, circumstances, and influential ideas.

854. The Community College. Cr. 3

Characteristics of community colleges: origins; organization, finance, and control; sites, programs, staffs, and students; relation to state and federal governments.

855. Comparative Higher Education. Cr. 3

Prereq: HED 850 or 853 or consent of instructor. Seminar for advanced doctoral students. Examination and comparison of contemporary systems of higher education in other countries. Issues,

trends, and problems of higher education in the world.

856. Administration in Higher Education. Cr. 3

Prereq: graduate standing. Principles of administration applied to leadership in colleges and universities. Special projects according to positions held and particular interest of students.

857. Seminar in Higher Education. Cr. 3

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 of significance.

858. Advanced Seminar in Higher Education. Cr. 3

Prereq: HED 857. Preparation and evaluation of research papers in higher education.

859. Research Seminar and Practicum. Cr. 3-6

Prereq: consent of adviser and six credits in required research techniques. Students develop research proposals, critically evaluate each other's research designs, plan dissertation format and conduct necessary pilot studies.

Instructional Technology (I T)

510. Using Audiovisual Methods, Materials and Equipment. (LS 638). Cr. 2

Survey of educational media, methods, and materials. Principles of systematic instructional design applied to the design of group-based and individualized instructional materials, operation of common audiovisual equipment, review of innovative instructional practices; computer applications and learning games.

511. Educational Technology. Cr. 2

Technological applications to education, training, and instruction within educational, industrial, and human services settings. Students examine, develop, and/or evaluate unique instructional programs. For educators and non-educators interested in exploring technological applications in education.

512. Instructional Materials Workshop. (LS 637). Cr. 1-3(Max. 3)

Prereq: I T 510 or 511 or consent of instructor. Design and development of audiovisual materials for use in educational, industrial, and/or human services programs. Students produce an audiovisual presentation.

513. Planning and Producing Multi-screen/Multi-image Presentations. Cr. 3

Prereq: I T 512 or consent of instructor. Examination of methods and procedures for producing multi-screen/multi-image presentations including the use of micro-processing computers. Students plan and produce a multi-screen or multi-image presentation.

519. (AED 519) Light, Sound, Space, and Motion. Cr. 3

Required for certification in Art Education. Material fee as indicated in *Schedule of Classes*. Laboratory experience in planning and producing films and slides, with and without a camera, for artistic expression and educational communication. Preparing a storyboard, animation in Super 8mm, marking on 16mm film, titling, recording and synchronizing sound tracks, marking on 2x2 slides, photographing 35mm slides.

611. Systems Techniques in Educational Planning and Management. Cr. 3

Prereq: consent of instructor. Identification and application of various systems techniques in educational planning and management.

613. Individualized Instruction. Cr. 3

Individually paced course in the design and organization of individualized instruction. Current systems of individualized instruction, common individualized designs (including open curriculum), different bases for individualization, and specific designs in the preparation of individualized materials.

616. Management of Instruction. Cr. 2

Prereq: I T 511 or 613 or 711 or consent of instructor. Inadequacies of current systems for managing instruction; examination of critical and supportive elements of an instructional management system. Students design and develop an instructional management system for their own or a given instructional context.

710. Introductory Graduate Seminar in Instructional Technology. Cr. 3

Prereq: admission to I T program or consent of adviser. Students define the field of instructional technology; professional journals and organizations, philosophical issues; research foundations.

711. Instructional Design. (LS 735)(HE 754). Cr. 3

Prereq: I T 511 or L S 636 or I T 611 or consent of instructor. Principles of instructional design: instructional task analysis, front end analysis, criterion testing, and hierarchical sequencing. Students develop relevant instructional designs.

712. Strategies for Instructional Development. Cr. 2

Prereq: I T 711 or L S 735 or consent of instructor. Alternative strategies for undertaking instructional development activities within education, industrial, or human services agencies; review of related curricular issues. Students design an instructional development plan for a given or developmental context.

713. Designing Learning Games and Simulations. Cr. 3

Prereq: I T 613 or consent of instructor. Role of learning games and simulations in instruction; individual and group uses in individualized instruction. Students design and develop a learning game and a simulation.

714. (SPR 857) Seminar in Computer Assisted Instruction. Cr. 2

Prereq: consent of instructor. Application and evaluation of command languages, files, and programs of computer-based or controlled instructional languages to the communication media.

715. Educational Product Evaluation. (HE 755). Cr. 3

Prereq: I T 711 or consent of instructor. Developmental and evaluation research proposals, techniques for assessing instructional sequences, methods of large-scale curriculum evaluation and research, instructional packages.

716. Computer Managed Instruction. Cr. 3

Prereq: I T 616. Advanced course in instructional management; the role of the computer in instruction. Students design a computer-managed system of instruction for use in a given context.

810. Designing Educational Programs. Cr. 2

Prereq: admission to doctoral program or consent of adviser. Alternative processes for the design and implementation of educational programs: sources of funding, needs analysis, objectives development, curricular parameters, budget designation, and systems monitoring. Students create an educational program design.

811. Advanced Instructional Design. Cr. 2

Prereq: I T 711 and admission to doctoral program or consent of adviser. Continuation of I T 711. Development of sophisticated instructional systems. Students develop a design for a complex instructional system.

812. Practicum in Instructional Technology. Cr. 1-9(Max.9)

Prereq: I T 711; 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, business, industrial, or human services setting.

813. Individual Projects in Instructional Technology. Cr. 1-6(Max. 6)

Prereq: I T 613 or 711 or 713 and consent of adviser and instructor. Students develop instructional technology material packages and devices through individual design and production.

815. Needs Assessment and Program Validity. Cr. 3

Prereq: I T 715 and admission to doctoral program or consent of adviser. Needs assessment models, procedures and approaches. Bases for designing programs, validating programs, and assessing continuing validity of ongoing programs. Students undertake a needs assessment validation study to confirm the validity of the intents of a new or existing program.

816. Educational Management Systems. Cr. 2

Prereq: I T 716 and admission to doctoral program or consent of adviser. Approaches to instructional management: total system involvement, use of decision-making models. Students develop and apply a management system for a given instructional setting.

817. Human Factors in the Design of Educational Systems. Cr. 2

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.

818. Readings in Instructional Technology. Cr. 1-6(Max. 6)

Prereq: 9 credits in instructional technology or consent of instructor. Individually-paced course: investigation of recent research studies and theoretical essays in the field.

910. Issues in Instructional Technology. Cr. 2

Prereq: admission to instructional technology doctoral program or consent of adviser. Exploration of current issues; identification of needed research. Students conduct a critical analysis of several issues and suggest research which resolve or alleviate each issue.

911. Advanced Research Seminar and Practicum. Cr. 3

Prereq: EER 763 and EER 764 or I T 818 or consent of adviser. Open only to doctoral students. Students develop a research proposal, critically evaluate each other's research proposals, and conduct pilot studies which will lead to more productive research in the field.

915. Educational Futures. Cr. 2

Prereq: 15 credits in graduate education courses and consent of instructor. Futures research designs and techniques; alternative futures models; the role of values structuring and decision-making in futures forecasting. Students develop a futures research study and extensively review futures literature.

LIBRARY SCIENCE

Office: 315 Kresge Library

Director: Robert E. Booth, Professor

Professors

Genevieve Casey, Margaret Grazier

Associate Professors

Michael Keresztesi, Betty Maurstad, Edith B. Phillips

Assistant Professor

Freddiemae E. Brown

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 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 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 and sixth year specialist 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 medical librarianship track prepares students for the Medical Library Association certificate examination.

GRADUATE PROGRAMS

Master of Science in Library Science (M.S.L.S.)

This is a professional library science program accredited by the American Library Association and is designed for public, academic, special, or school librarianship. The National Commission on Accrediting has authorized the American Library Association to serve as the accrediting agency for graduate programs of library education leading to the first professional degree.

— Admission

The applicant must present evidence of satisfactory undergraduate preparation for his/her field of specialization and must meet all requirements of the Graduate School and be accepted for study toward the graduate professional degree by the Division of Library Science. Prerequisites include a baccalaureate degree with undergraduate courses so distributed as to give the student a *minimum* of seventy 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.

— Degree Requirements

In this program, the student must complete a minimum of thirty-six credits, to be distributed as follows: twenty-one credits in the library science professional core, and normally a minimum of nine credits in the area of library science specialization. A maximum of six credits in courses outside of Library Science may be accepted as cognates.

— The Professional Core (21 credits)

credits

LS 601 — Introduction to Librarianship.....	3
LS 611 — General Reference Service.....	3
LS 621 — Technical Services in Libraries.....	3
LS 781 — Automation and Data Processing for Libraries.....	3

At least two of the following three courses:

LS 711 — Subject Reference and Bibliography: Humanities.....	3
LS 712 — Subject Reference and Bibliography: Science and Technology.....	3
LS 713 — Subject Reference and Bibliography: Social Sciences.....	3
LS 799 — Master's Seminar and Essay or Project.....	3

— Library Science Electives (9 credit minimum)

Students are expected to take at least one but no more than two courses, about types of libraries, for example, Library Science 631, 721, 741, or 751, or alternately, courses leading to a functional specialization, e.g., archives, automation, reference services, technical services.

— Areas of Specialization

The following areas of concentration are available within Wayne State's graduate library science program:

- Academic Librarianship
- Archives
- Automation and Data Processing
- Law Librarianship
- Library Service to Special Groups
- Medical Librarianship
- Public Librarianship
- Reference Services
- School Library-Media Services
- Services to the Aging
- Special Librarianship
- Technical Services

For each specialization a curriculum track is available which indicates those courses required of all students, those courses required of all students following that particular specialization, and additional library science electives and/or cognates outside of library science.

— Course Profiles

Profiles for each 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 769.

¹ Normally this would be taken as the first Library Science course.

— Plans of Work

When a graduate student in this program has completed nine credits 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 M.S.L.S. degree and the student's specialization are listed and officially filed.

Sixth Year Specialist Certificate in Librarianship (30 Credits)

Purpose

The Specialist Program in Librarianship, a certificate program, is designed to enable practicing librarians, according to individual needs and goals, to:

1. update knowledge in the rapidly changing field of librarianship—the organization, storage, retrieval, and dissemination of the human record;
2. use investigative methods and research findings in problem-solving and in the planning and evaluation of library services;
3. advance and extend competencies in areas of specialization begun during the first professional degree program (M.S.L.S.). Specializations might be in a particular library function (such as organization of materials, retrieval of information, data processing, collection development, management, public relations, adult education), or in a type of library (such as public, school, academic, and special), or in a service to a specific target group (such as business and industry, early childhood, aged, handicapped, institutionalized);
4. develop a new specialization responsive to the changing economic, technological, or social climate or to changing conditions in the life of the individual librarian.

— Curriculum

An individually tailored plan of work will be prepared for each student, including:

Required Courses: All specialist candidates will be required to complete fifteen credits of course work:

	<i>credits</i>
L S 851 — Library Management	3
L S 853 — Advanced Automation and Data Processing for Libraries	2
L S 852 — Human Communication and the Library	3
EER 763 — Fundamentals of Statistics	4
L S 898 — Specialist's Research Project and Seminar	3

Electives: The remaining credits in the program, bringing the total to thirty, are to be selected from advanced Library Science courses or from appropriate cognate courses available throughout the University. Examples of Library Science electives include courses numbered in the group L S 801 - 898.

— Admission Requirements

Candidates for admission to the Specialist Certificate Program in Librarianship must meet the following requirements:

1. have earned a Master's degree in Library Science from an American Library Association accredited program with an honor point average of at least 3.5;

2. have professional experience in a library, information center, or school media center; and

3. demonstrated competence, initiative and leadership potential as indicated by recommendations of employers and colleagues.

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 twenty 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 fifty-three 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 College of Lifelong Learning students interested in public, academic or special library work may be authorized to take up to nine 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.

Special Awards

The Patricia B. Knapp award is given annually to the graduating M.S.L.S. 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.

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.

Beta Phi Mu

The Beta Tau Chapter of Beta Phi Mu, the international honorary society in Library Science, is located at Wayne State University. To be eligible for membership, a student must maintain a minimum academic average of 3.75, show a high level of professional promise, and be recommended by the faculty.

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

Library Science students may use the University Placement Services, 111 Mackenzie Hall. Students specializing in school library-media are encouraged to consult the Education Placement Office, 469 Education Building. Placement services include establishment of credential files to be mailed to prospective employers. In addition to the University and Education Placement Offices, the Library Science Division maintains an extensive listing of currently available positions in all types of libraries throughout the United States.

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 Bulletin. Candidates are invited to inquire of the Library Science Division director about special fellowships or scholarships.

COURSES OF INSTRUCTION¹ (L S)

601. Introduction to Librarianship. Cr. 3

The development and place of libraries in society; objectives, functions and trends of major types of libraries.

611. General Reference Service. Cr. 3

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.

621. Technical Services in Libraries. Cr. 3

Prereq: consent of adviser. Survey of objectives and methods of acquisition, classification, cataloging, preparation of books and related materials in libraries.

631. School Library-Media Programs. Cr. 3

The library-media program in elementary and secondary schools: organization, administration and patterns of service.

632. Selection and Evaluation of Library Materials for Children. Cr. 2

Study and evaluation of books and audio-visual materials suitable for school and public libraries. Bibliographic tools, publishing and

distribution.

633. Selection and Evaluation of Materials for Young Adults. Cr. 2

Critical analysis of literature and instructional materials in all subject fields and formats, and sources of information about them.

634. Reading, Viewing and Listening Interests of Children and Youth. Cr. 2

Prereq: consent of instructor. Factors related to reading, viewing, and listening interests and their effects. Emphasis on research investigation and its application.

635. Problems in the Selection and Utilization of Learning Materials. Cr. 2

Prereq: teaching or school library experience. Designing programs to improve selection, evaluation and utilization of library-media resources.

637. (I T 512) Instructional Materials Workshop. Cr. 1-3(Max. 3)

Prereq: L S 636 or consent of instructor. See I T 512.

638. (I T 510) Using Audiovisual Methods, Materials and Equipment. Cr. 2

See I T 510.

651. (ELE 720) Survey of Recent Literature for Younger Children. Cr. 2

See ELE 720.

652. (ELE 724) Survey of Recent Literature for Older Children. Cr. 2

See ELE 724.

653. (EED 631) Literature for Adolescents. Cr. 3

Prereq: directed or regular teaching. See EED 631.

654. (ELE 727) History of Children's Literature. Cr. 3

Prereq: consent of adviser. See ELE 727.

655. (ELE 728) Storytelling. Cr. 3

Prereq: ELE 320 or ELE 720 or ELE 724 or consent of instructor. See ELE 728.

690. Directed Study. Cr. 1-3(Max. 3)

Prereq: consent of adviser. Undergraduate credit only

711. Subject Reference and Bibliography: Humanities. Cr. 3

Prereq: L S 611. The nature of the arts and the humanities; information needs of the artist, the humanistic scholar, and the layman; library programs in the arts and the humanities; problems of communication and information in the several humanistic fields of study.

712. Subject Reference and Bibliography: Science and Technology. Cr. 3

Prereq: L S 611. 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.

713. Subject Reference and Bibliography: Social Sciences. Cr. 3

Prereq: L S 611. Characteristics of the social science disciplines: structure, concepts, methods of investigation. Major figures and significant works in the general field. Bibliographic control, reference tools, instructional resources.

721. Public Library Systems and Services. Cr. 3

Prereq: consent of adviser. Present-day functions of public libraries as information and social agencies. Organization, administration and patterns of service.

¹ See page 633 for interpretation of numbering system, signs and abbreviations

- 724. Selection and Evaluation of Library Materials for Adults. Cr. 2**
Prereq: consent of adviser. Selection philosophy and theory. Critical analysis of bibliographic and information sources, aids and tools used in selection of materials for adults. Study of evaluation techniques.
- 731. School Media Center Administration. Cr. 3**
Prereq: L S 631 and library-media experience. Management function of the library-media program director in planning, budget, personnel resources and facilities.
- 735. (I T 711) Instructional Design. Cr. 3**
Prereq: I T 611 or consent of instructor. See I T 711.
- 741. College and University Library Systems and Services. Cr. 3**
Prereq: L S 601. Educational and research role of the academic library in contemporary setting. Organization, administration and patterns of service. Responses to environmental challenges.
- 751. Special Libraries and Information Centers. Cr. 3**
Prereq: L S 601 and 621. Services, planning, organization and administration. Analysis of objectives, personnel, particular relationships to clientele, methods of handling non-book materials, trends in mechanization. Case studies.
- 761. Medical Bibliography and Medical Library Administration. Cr. 3**
Prereq: L S 621 and 712. Bibliographic control of the biomedical literature, the biomedical communication complex, medical library networks, special problems relevant to medical library administration.
- 765. Traineeship in Medical Librarianship. Cr. 2-4**
Prereq: consent of adviser. For M.S.L.S. candidates specializing in medical librarianship. A one-year full or half-time traineeship in medical librarianship in a cooperating hospital library coincident with the M.S.L.S. program, including both theory and competencies intrinsic to medical librarianship.
- 769. Professional Field Experience and Seminar. Cr. 2-3**
Prereq: 20 credits in appropriate graduate library science courses and consent of supervising faculty. Planned 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 fall term by first day of winter term; for winter term: by first day of fall term.
- 771. (HIS 784) Introduction to Archival Methods I. Cr. 3**
Prereq: consent of chairperson. Basic training in archival methods.
- 772. (HIS 785) Introduction to Archival Methods II. Cr. 3**
Prereq: consent of chairperson. Continuation of L S 771.
- 773. (HIS 789) Conservation and Administration of Photograph Collections. Cr. 3**
See HIS 789.
- 774. Reprography for Librarians and Archivists. Cr. 2**
Prereq: consent of instructor. A basic course in the fundamentals of copying and documentary reproduction.
- 775. (HIS 781) Introduction to Archival and Library Conservation. Cr. 3**
Prereq: written consent of instructor and advanced standing in Master's program. Fundamentals of archival and library conservation problems and methods essential for effective preservation management of paper and associated materials.
- 776. (HIS 782) Principles and Practices of Archival and Library Conservation. Cr. 3**
Prereq: L S 775 and consent of instructor. Advanced course in library and archival conservation providing theory and practice of basic laboratory preservation and restoration treatment.
- 777. (HIS 786) Oral History: A Methodology for Research. Cr. 3**
Techniques of gathering data from individuals for use in research, classroom teaching; historical, cultural or other contexts.
- 781. Automation and Data Processing for Libraries. Cr. 3**
Prereq: consent of adviser and L S 621. Storage and retrieval problems as approached by conventional and nonconventional methods. Computer applications in libraries.
- 785. Issues in Librarianship. Cr. 1-3(Max. 3)**
Prereq: written consent of adviser. Critical analysis of library research, socio-technological trends, implications for the profession. Topics to be announced in *Schedule of Classes*.
- 790. Research and Directed Study. Cr. 1-8(Max. 8)**
Prereq: written consent of adviser and graduate officer on Petition and Authorization for Directed Study prior to registration.
- 795. Advanced Research and Directed Study. Cr. 1-8(Max. 8)**
Prereq: written consent of adviser and graduate officer on Petition and Authorization for Directed Study prior to registration.
- 798. Advanced Field Study. Cr. 2-3**
Prereq: written consent of adviser. Open only to Library Science Specialist program students. Intensive internship in management or operation of a cooperating library or library related project.
- 799. Terminal Master's Seminar and Essay or Project. Cr. 3**
Prereq: written consent of adviser.
- 801. Popular Culture and the Library. Cr. 2**
Prereq: L S 711. The nature and manifestations of popular culture and the structure of the literature. The role of the library in collecting, preserving and making available popular culture materials.
- 811. Government Publications. Cr. 3**
Prereq: L S 713. Selection, acquisition, access, and reference use of major federal, state and local documents. Introduction to Canadian, British and United Nations documents. Overview of federal publishing program; the document-generating processes of Congress, the judiciary, and the executive departments and regulatory agencies; the federal, state and local documentary system.
- 812. Legal Information for Librarians. Cr. 2**
Prereq: 18 credits in appropriate library science courses and consent of adviser. Acquaintance with the foundations of federal and state law; analysis of legal information problems: selection, organization and use of the basic tools in legal research.
- 813. Business and Industry Information for Librarians. Cr. 2**
Prereq: L S 713. Exploration of the structure, functional organization, and information needs of industrial, investment, and business enterprises. Study of bibliographic control of relevant literature, information sources, and specialized services.
- 821. Advanced Classification and Cataloging. Cr. 3**
Prereq: L S 621. Advanced problems in descriptive cataloging, including different forms of materials, and automated cataloging information. Further study of theory, structure and application of classification systems and subject heading lists.
- 822. Serials and Special Materials. Cr. 2**
Prereq: L S 621. The place of serials publication in the library collection: selection and acquisition, bibliographic control, organization and management.
- 823. Indexing and Abstracting. Cr. 2**
Prereq: L S 621. Indexing and abstracting theories and practice in a range of disciplines and materials. Computerized applications and

other automated techniques.

824. Bibliographic Data Bases. Cr. 3

Prereq: L S 781. Overview of data bases and data based services. Question negotiation and on-line search techniques, system selection, implementation and management. Hands-on training in an information retrieval system.

841. Library Systems and Services. Cr. 1-3(Max. 12)

Prereq: consent of adviser. Current administrative problems affecting library systems and services. Topics to be announced in *Schedule of Classes*.

842. Library Service to Special Groups. Cr. 3

Prereq: L S 721. Library service to groups with specialized needs requiring distinctive applications of library skills, special insights and attitudes.

851. Library Management. Cr. 3

Prereq: consent of adviser. Strategies in library management, the planning process, individual and organizational goals, leadership styles and organizational patterns, interpersonal skills, financial management.

852. Human Communication and the Library. Cr. 3

Prereq: admission to Library Science Specialist program. The interactive role of librarianship in the total communication system of recorded information; effects of technological change on human communication.

853. Advanced Automation and Data Processing for Libraries. Cr. 2

Prereq: L S 781. Basic programming and systems analysis for libraries. Examination of data management systems used for the automation of library functions.

861. Advanced Studies in Public Librarianship. Cr. 2

Prereq: L S 721 and 851. Open only to Library Science Specialist students. Advanced exploration of current issues of public library governance, finance, administration, personnel, materials, services, access, problem solving.

865. Advanced Studies in School Library Media Programs. Cr. 2

Prereq: admission to Library Science Specialist program; L S 851. Current issues in the school library media field: selection and utilization, measurement and evaluation, role perception, automation and data processing, supervision, networking.

871. Advanced Studies in Academic Librarianship. Cr. 2

Prereq: L S 741 and 851. Open only to Library Specialist Students. Major issues in academic library services. Emphasis on the theoretical and methodological approaches to problem solving.

875. Advanced Studies in Medical Librarianship. Cr. 2

Prereq: L S 761. Open only to Library Science Specialist students. Examination of the medical, sociological, economic, and political changes and trends in today's health care environment as they influence the role of the medical library and call for relevant response.

876. Patient Education, Lay Health Information, and the Library. Cr. 2

Prereq: L S 712. Current and future needs in patient and lay health information areas, selection and acquisition, bibliographic control, problems in circulation and dissemination, legal and ethical implications.

877. Media Management in Medical Libraries. Cr. 2

Prereq: L S 712, appropriate library science courses and consent of adviser. Selection, acquisition, circulation, and storage of health sciences audio-visual materials, both hardware and software.

878. Information Sources: Pharmacy, Nursing, Dentistry, and Mental Health. Cr. 2

Prereq: L S 712. Open only to Library Science Specialist program students. Literature needs, reference sources, data bases and search procedures in the fields of pharmacy, nursing, dentistry, and mental health.

881. Documents of International Organizations. Cr. 2

Prereq: L S 811. Open only to Library Science Specialist students. Publishing and documentary activities of the United Nations and its specialized agencies, the Organization of American States, NATO, the European communities, Organization of African Unity, COMECON, and of key non-governmental bodies.

882. Interdisciplinary Bibliographic Studies. Cr. 1-3(Max. 8)

Prereq: consent of library science adviser. Inquiry and bibliographic structures in broad fields of knowledge. Interrelationships among the humanities, social sciences, and science and technology; interdisciplinary problem-based research.

883. Seminar in Area Studies and Library Collection Development. Cr. 2

Prereq: L S 711 and 713. Attributes of major cultural areas of the world which affect publishing and the book trade; bibliographic control, resource development and service skills for area studies collections.

898. Specialist's Research Project and Seminar. Cr. 3

Prereq: written consent of adviser.



TEACHER EDUCATION

Division Head: Cynthia M. Colvin
Office: 241 Education Building

Associate Head: Asa J. Brown
Office: 269 Education Building

TED Advising: Otis W. Morris
Academic Services Officer: Robert G. Cullinan
Office: 212 Education Building

Art Education Advising Office: 163 Community Arts Bldg.

Professors

Donald J. Bissett, Asa J. Brown, Thomas W. Coleman, Jr., Cynthia M. Colvin, Fred S. Cook, Kenneth A. Hanninen, Polly Mosteller Hughes, Benjamin Jordan, Leonard Kaplan, Peter L. Sanders, E. Brooks Smith, Eugene P. Smith, Gary R. Smith, Samuel B. Stone, Louis F. VanderLinde, Frank O. Youkstetter

Associate Professors

Rudi Alec, Fred G. Attebury, Daniel E. Behmer, Thomas A. Buescher, John S. Camp, Sharon W. Elliott, Annamarie Hayes, Gwendolyn Y. Hogue, Tommie U. Johnson, Bette H. LaChapelle, Stella S. F. Liu, David H. Makinson, Rodolpho Martinez, John T. Norman, Jr., Arthur R. Park, Richard M. Parres, Virginia L. Pearson, James H. Quina, Rita C. Richey, Joseph Sales, Sr., Jacqueline Tilles

Assistant Professors

James H. Blake, Claudia Collin, Loretta B. Jones, Beverly N. Parke, R. Craig Roney, Edward Walker, Jr., Paula Wood, Anga Yousef, Marshall Zumberg

Lecturers

Ruby N. Butts, Mary L. Gendernalik, Marilyn Gutmann, Mary K. Jones, Delores V. Leonard, John Nowosad, Phyllis Samuels, Barbara Vance, David W. Wilson

Purposes

The Division of Teacher Education emphasizes 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 teacher education programs are:

1. directed toward the preparation of teachers and institutional specialists who are knowledgeable about the growth, development, and learning of children and youth, in teaching styles and strategies, and who are committed to the continuous improvement of the processes of education;
2. field-oriented through continual interrelation of studies and practicum in school settings in differing socio-economic and ethnic communities;
3. cooperatively developed by faculty and representatives of the profession, the community, the students and faculty in the University at large;
4. humanely oriented and foster personal growth and interaction;
5. planned to evaluate interdisciplinary study in the liberal and pedagogical disciplines;

6. 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 beginning and advanced professional roles:

1. teachers at pre-school, elementary, special education, middle and secondary school levels in all areas of curriculum;
2. supervisory and resource teachers, coordinators, consultants and curriculum specialists;
3. Teachers and consultants in adult and parent education in school and non-school settings;
4. college and university teachers and researchers in the field of teacher education.

UNDERGRADUATE PROGRAMS

Within the Division of Teacher Education

Programs leading to a bachelor's degree and a Michigan Provisional Certificate include:

Art Education
Bilingual-Bicultural Education
Business Education
Distributive Education
Elementary Education
English Education—Secondary
Foreign Language Education
Family Life Education
Health Education
Health Occupations Education
Industrial Education
Mathematics Education
Music Education
Nursery School Education
Physical Education
Science Education
Social Studies Education—Secondary
Special Education
 Multiply Impaired
 Speech Pathology¹
 Visually Impaired
Special Education and Business Education
Special Education and Family Life Education
Special Education and Industrial Education
Speech Education—Secondary

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 wish to include a Library Science minor in their certification program should consult an adviser in Room 315 Kresge Library.

¹ A master's degree is required for certification in this program.

Graduation Requirements

Students completing a program leading to a Bachelor of Science degree and Michigan Provisional Certificate must meet the following graduate requirements:

1. Completion of at least 124 credits.
2. Forty credits in general education including 6-8 credits in English (ENG 102, plus one course at the 200 level or above) and general education courses specified by individual program areas.
3. Completion of major 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. Two credits in physical education activities courses.
7. Three credits in hygiene.
8. Completion of the University requirement in 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 twelve 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, physical education, school library education and music education, where the holder of a provisional certificate is qualified to teach his/her major subject in all grades, and, if indicated by his/her 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 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 Teacher's 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 course work. Both the teaching experience and the additional credits 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/her major subject in all grades from the kindergarten through the twelfth. The qualifications which the College requires for recommendation for the certificate 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.

Elementary Provisional

Endorsement for Kindergarten through Grade Nine*

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. A single subject major is defined as a minimum of thirty credits and a group major as a minimum of thirty-six credits. A single subject minor is a minimum of twenty credits, and a group minor is a minimum of twenty-four 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 single subject major is defined as a minimum of thirty credits and a group major as a minimum of thirty-six credits. A single subject minor is a minimum of twenty credits and a group minor is a minimum of twenty-four 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 64 for general requirements for the Master of Arts in Teaching degree. The student may need to

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.

*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.

supplement previous degree work in order to satisfy major and minor provisions of the Michigan certification code.

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:

Eighteen-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 eighteen credits in a planned course of study after the issue date of their provisional certificate or have a master's degree.¹

Thirty-Hour Continuing Certificate

For information regarding the Thirty-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 the secondary school grades (7-12).³

Teachers of K-12 subjects: art, music, physical education, and special education may present experience at any grade level from kindergarten through grade 12.

Continuing certification with vocational endorsement requires a planned program. *Students should consult the appropriate area adviser* regarding certification for an approved program leading to continuing certification with a vocational 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 any modern language. Students qualifying for an initial provisional certificate complete a twenty-four credit minor for the endorsement. Students holding existing certificates may add a bilingual endorsement by completing an eighteen credit Planned Program. Information and referral to the appropriate adviser on requirements for this endorsement may be obtained in Room 212 Education Building.

Early Childhood Endorsement

Early Childhood Endorsement is a Nursery School—Kindergarten (pre-primary) endorsement for teachers holding the K-8 certificate. The endorsement is an eighteen credit program earned after the granting of the Provisional Certificate. The courses may be part of a M.Ed. or MAT program. Students should consult a counselor in Room 489 Education Building for further information on the Early

¹ For a student who is admitted to a program leading to a master's degree, the first eighteen 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 ten credits of college work since the date of issue.

Childhood Endorsement.

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 eighteen 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 semester student teaching will take place. Student teaching periods are as follows:

Fall semesterthe preceding October, November, December, January
Winter semesterthe preceding April, May, June, July

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 six 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 tuberculosis test within six months before assignment begins.
6. Satisfactory rating on the Teacher Education Division's Writing Competency Examination.

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.
3. Complete health examination and tuberculosis test at University Health Services, Health Care Institute, 4201 St. Antoine (next to Scott Hall), for appointment call 494-4774.

Writing Competency Examination

All students admitted to a teacher certification program are required to take the Writing Competency Examination of the Division prior to admission to the College of Education.

Advising Office

Information, written descriptions of programs, and referrals to advisers may be obtained from the following advising offices: Art Education, Room 163, Community Arts Building; Business Education, Distributive Education, Room 421 Education; Family Life Education, Health Occupations Education, Room 273 Education; and Industrial Education, Room 281, Education Building; all other programs of the Division from Room 212, Education Building.

Undergraduate Professional Education Sequence

The faculty of the Undergraduate Professional Education Sequence represents the various disciplines and curriculum areas listed on page 81, and provides the basic professional sequence which is required of undergraduate majors in elementary education, special education, secondary English education, mathematics education, science education, secondary social studies education, and speech education.

Additional courses beyond the professional education sequence are available to students with special program requirements or for whom it is determined that additional study or field experience is needed.

Students should consult an adviser to determine how to plan for the professional sequence in their programs. Students in certain majors are restricted to beginning the sequence during specific semesters.

In the undergraduate professional sequence, students are expected to complete courses in theory and field experiences. Students are assigned field experiences in both Detroit and suburban schools. For students who cannot attend during the day, a late afternoon-evening program is available. Students entering this program must be approved by the Division screening committee. Students should consult advisers concerning general and specific requirements for undergraduate degrees and provisional teaching certificates.

Art Education

The program in Art Education leads to a Bachelor of Science¹ degree and a Michigan Provisional Teaching Certificate which enables the holder to teach art in kindergarten through twelfth grade.

Students are encouraged to enroll in the Art Education program as freshmen, but undergraduates may be admitted any time during the course of their baccalaureate studies, or those who have received a bachelor's degree in art can usually complete the requirements for post-degree certification in approximately a year and a half.

Applicants for admission to the program at the senior college level (junior and senior year) are required to submit a satisfactory portfolio of art work. Students should inquire at the Art Education Office, 163 Community Arts Building for details.

The program is designed to educate undergraduate students as both artists and teachers. Those students who complete the four year program will acquire a major in art with emphasis in a particular studio area, and an academic minor which will qualify them to teach another subject area in the secondary schools.

A new program in Special Art Education allows undergraduates to acquire dual certification in Art Education and Special Education through intensive studies which can be completed in four years.

— Minimum Credit Distribution

	<i>credits</i>
MAJOR: ART EDUCATION AND ART	51
(including 6 credits for in-depth elective)	
GENERAL EDUCATION	40
(including credits for a required teaching minor and Art History requirements)	
PROFESSIONAL EDUCATION.....	22
PHYSICAL EDUCATION	2
ELECTIVE	9
MINIMUM HOURS FOR GRADUATION.....	124

For information on the courses required for an Art Education major, contact an adviser in Art Education.

Bilingual/Bicultural Education

The bilingual/bicultural education programs prepare students for teaching, supervisory, and administrative roles in programs at the school district and college/university levels.

The Bilingual/Bicultural Education Teacher Training Program endorses bilingual teachers in all languages for assignments in the State's programs.

Business Education and Distributive Education

Business/Distributive curricula are based on competencies necessary for the preparation and certification of teachers of business or distributive education. Coterminous programs leading to the bachelor's degree, recommendation for a provisional teaching certificate and recommendation for vocational endorsement are offered.

There are certain competencies common to both the business education major and the distributive education major. In each field it is necessary to have forty-four credits of general education, one teaching minor of twenty four credits, thirty credits of professional education, a sequence of courses in Business/Distributive Education and a teaching major of thirty-six credits in business and related fields. A *Plan of Work* must be completed and approved by an adviser before registering for the second term in the Business/Distributive Education Program. The typical teaching majors for each curriculum area are:

Business Education

	<i>credits</i>
BDE 530 — Word Processing I (Typewriting)	3
BDE 535 — Word Processing II (Recording/Transcribing)	3
BDE 537 — Word Processing III (Principles)	3
BDE 538 — Word Processing IV (Methods)	3
BDE 539 — Strategies of Office Procedures	3
BDE 630 — Business/Distributive Education Cooperative Internship	6
ACC 301 — Elementary Accounting Theory I	3
MKT 530 — Marketing Management	3
ACC 351 — Business Law - Contracts, Sales	3
MGT 559 — Introduction to Management	3
MGT 576 — Office Administration	3
	Total: 36

¹ A Bachelor of Arts degree as an alternate is available if the student completes a language requirement.

Distributive Education

	credits
BDE 530 — Business/Distributive Education Communications I.....	3
BDE 630 — Business/Distributive Education Cooperative Internship.....	3
MGT 559 — Introduction to Management.....	3
MGT 566 — Small Business Management.....	3
ACC 301 — Elementary Accounting Theory I.....	3
ACC 351 — Business Law - Contracts, Sales.....	3
MKT 530 — Marketing Management.....	3
MKT 549 — Principles of Advertising.....	3
FAC 547 — Visual Merchandising: Display.....	3
FAC 546 — Merchandising II.....	3
FAC 549 — Economics of Merchandising.....	2
Total:	36

— Teaching Minor in Business Education

Holders of secondary certificates in any teaching major may elect, with consent of an adviser, to secure a Business Education minor. Recent and relevant work experience in an office occupation is an integral part of this minor.

— Career Options in Business Education

The students majoring in business education have several career options available to them. These options include teaching office occupation courses at the secondary level, teaching at the community college level, teaching in business, or securing supervisory/management positions in business.

The program for the first three years will be the same for all students. In the senior year, however, those students who do not require a teaching certificate for their career goal will be assigned a different set of education courses in consultation with an adviser.

Option I: Secondary Teaching Certificate

	credits
BDE 531 — Foundations of Business/Distributive Education.....	3
BDE 532 — Business/Distributive Education Methods - Typewriting.....	3
BDE 533 — Business/Distributive Education Methods - General.....	4
TED 456 — Senior Seminar.....	4
TED 455 — Directed Teaching and Conference.....	10
EDP 548 — Adolescent Psychology.....	3
EHP 360 — Introduction to Philosophy of Education.....	3

Option II: Non-Certificate

	credits
BDE 531 — Foundations of Business/Distributive Education.....	3
BDE 532 — Business/Distributive Education Methods - Typewriting.....	3
BDE 533 — Business/Distributive Education Methods - General.....	4
TED 456 — Senior Seminar.....	4
EDP 548 — Adolescent Psychology.....	3
Instructional Design.....	9
Education elective.....	4

— General Requirements

The College of Education Writing Competency Examination must be completed successfully prior to the election of courses in the professional sequence.

In addition to the regular admission procedures, each applicant must have a personal interview with a Business/Distributive Education adviser and complete a *Plan of Work*.

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*.

— Certification and Vocational Endorsement

Secondary provisional certification with eligibility for vocational endorsement is *required* in Business or Distributive Education. To be eligible for certification with vocational endorsement, an approved major, an approved minor and two years of verified, recent and relevant work experience in an approved occupation is required.

Continuing certification with *vocational endorsement* requires a planned program. See a business/distributive education adviser for an approved program leading to continuing certification with a vocational endorsement.

— Credit by Examination

Credit in selected occupational areas may be earned through competency examinations. Consult a Business/Distributive Education adviser for specific details.

— Intern Teaching

Secondary school intern teaching for Business/Distributive Education majors is scheduled for five full days per week for fall public school semester. Fall term usually begins the day after Labor Day and terminates the latter part of January.

For those students who meet the qualifications established by Business/Distributive Education, arrangements can be made to do in-service intern teaching.

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.

— Combined Curriculum with the School of Business Administration

Business Administration students may secure a teaching certificate through the College of Education. Such students should make application for College of Education approval in the term in which they will complete fifty-three semester credits. Those planning to exercise this option should consult with a Business/Distributive Education adviser as soon as the decision is made.

Family Life Education

Family life education is an undergraduate program preparing students for teaching both consumer home economics and home economics related occupations in junior high, middle, and high school. Course work in this program reflects current emphasis on consumer education, management of resources, nutrition and food use, and parenthood education in conformity with guidelines of the Annual State Plan for Vocational Education in Michigan.

Entering students should enroll in the College of Liberal Arts (Department of Family and Consumer Resources) and transfer to the College of Education after completion of a minimum of fifty-three credits. These students should also seek advising from a Family Life

Education adviser in their freshman year or immediately if transferring work from another institution. A four year plan is available on request. Students who plan to take most or all of their first two years of course work (and in particular, the major) at a community college may find it advantageous to visit with an adviser in the program upon beginning community college work.

Consumer Home Economics: This major requires thirty-seven credits, selected from each of the following areas: a) clothing and textiles, b) foods and nutrition, c) child and human development (with actual nursery school experience), d) personal and family relationships, e) consumer education and management problems, f) housing, equipment and interior design. Additionally, a twenty credit single subject minor or a twenty-four credit group minor is required. Social science or natural science are usually recommended as minors, however, students may choose any subject taught in the secondary school or one of the approved occupational programs: child care services, food management, or clothing management.

Home Economics Related Occupations: This program prepares students for teaching positions which emphasize the skills and competencies needed by young people for entry-level jobs in child care services, food management, clothing management, and home decoration. Majors will usually teach a single specialized subject to eleventh or twelfth grade students in a high school or in an area vocational center. In many high schools the teacher of these courses also coordinates the cooperative work experience and assists with job placement for graduates. The program consists of either a thirty credit single subject major or a thirty-six credit group major. Minor requirements are as stated above for consumer home economics.

Work Experience: All students majoring in one of the occupational programs must have two years or 4,000 clock hours of recent and relevant work experience. It is possible for one to meet half of this requirement by electing (with adviser's approval) a supervised work experience during the summer session.

Intern Teaching: Intern teaching is required for five full days a week during the fall semester. On the request of their administrator, in-service intern teaching may be arranged for those persons who meet the requirements established for Family Life Education. Application should be made for in-service teaching early in the program.

For those wishing to teach at a community college, intern teaching can be arranged at the post-secondary level. The community college focus does not lead to teacher certification.

Certification and Vocational Authorization: Completion of either emphasis in the Family Life Education program leads to a secondary provisional teaching certificate with vocational authorization. Persons who have already completed a degree will be admitted to a Master of Arts in Teaching (MAT) program; this combines the requirements for a teaching certificate with the requirements for a Master's degree. Usually certification work is completed prior to the degree requirements, but they may be coterminous. Continuing certificate requirements with full vocational authorization also requires a planned program or completion of a Master's degree; the program adviser can assist with these options.

Health Occupations Education

Health occupations education prepares teachers for those secondary school programs which train high school students for entry-level occupations in a variety of health fields. The program is designed for persons who are currently teaching in a secondary school health occupations program on an annual authorization, or persons who have a major in one of the health occupations taught in a secondary school and who wish to earn a secondary teaching certificate with vocational endorsement. Admission requirements are: 1) completion of the

teaching major; 2) possession of licensure or certification in the applicant's health field by the State of Michigan if one is required; 3) completion of two years or 4,000 clock hours of recent (within the last five years) and relevant work experience prior to admission.

Majors: The specific majors currently approved at Wayne State University are: a) registered nurse, b) medical technologist, c) dental hygienist, and d) dental assistant. *There is no teaching minor in any of the health occupations education curriculum.*

General Requirements: Students are expected to meet the same general requirements as majors in other educational areas. This includes a minimum of a teaching major, a single subject or group major, selected courses in physical science such as biology, chemistry, physiology and anatomy, some social science, related electives selected by the student, and the professional education sequence. Majors should include work in current health care and gerontology.

The Teacher Education Division requires all students to pass the College of Education Writing Competency Examination. This should be successfully completed prior to intern teaching.

In addition to the general admission procedures, a major in this curriculum must have an interview with the major adviser prior to enrolling in the first course in the program. A *Plan of Work* will be developed at that time with the student.

Secondary Certification and Vocational Authorization: On completion of the health occupations education program, an undergraduate will earn a bachelor's degree, a secondary provisional certificate, and a temporary vocational authorization in a health occupation major. Persons who already hold a bachelor's degree will be admitted to the Master of Arts in Teaching program (MAT). The MAT program combines course work to meet both the requirements for a teaching certificate with vocational endorsement and a master's degree in education. Usually the person in this program meets the certification requirement prior to completing the courses for the master's degree, however, in some cases they are coterminous.

Continuing certificate requirements with full vocational authorization also requires a planned program or completion of a master's degree. The program adviser can assist with either of these options. Persons who are currently teaching on an annual authorization may wish to consult with the program adviser to become fully certified. There is an option which allows one to continue with employment while qualifying for certification. Information regarding such options will be mailed on request.

Intern Teaching: See Family Life Education, page 86.

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.

Industrial Arts Teaching Major

Group Major: a minimum of thirty-six 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 is eligible upon certification to teach general industrial arts in the public schools, K-12 grades.

Vocational Industrial Education Teaching Major

Unit Major: a minimum of thirty 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 experience as compared with a major in industrial arts. Work experience in the subject in which the student 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.

Planned programs are available to transfer certain technical courses from selected community colleges. These programs provide the student with a majority of the technical courses needed for a teaching major in industrial education. *The industrial education staff must be consulted regarding these programs at cooperating community colleges prior to enrollment.* Subsequently, all arrangements must be approved by the adviser.

Course material covering woodworking, sheet materials, and multi-media must be taken at Wayne State University since they are not taught in community colleges. The required course is IE 476.

— 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.

Language Education

The diverse programs in language education prepare both undergraduates and graduates for teaching roles in many multilingual and multicultural settings.

Foreign Language Education (undergraduate and graduate): Students preparing to teach secondary foreign languages may major in French, German, Italian, Latin, Russian, or Spanish. For these majors, a minor in English is strongly recommended.

Teaching English as a Second/Foreign Language: The Master of Education Program and Doctoral Program provides a degree plus a Certificate of Achievement either from Wayne State University or the American University TESL/TEFL Consortium. Graduate programs are available for applicants with or without a teaching background. Emphasis is upon both American and International TESL/TEFL teaching.

Students may obtain information on or referral to an adviser in any of these programs from the advising secretary in Room 212, Education Building.

Mathematics Education

The degree programs in mathematics education reflect the most recent recommendations of mathematics educators on the pre-service and in-service preparation of teachers of mathematics. There is emphasis on laboratory activities and laboratory methods, diagnosis and remediation of disabilities in learning and retaining mathematical concepts, research in mathematics education, uses of the computer and the calculator in teaching, dissemination of information about nationally recognized curriculum projects in mathematics, K-12, and the study of mathematics education programs worldwide.

Degree programs are also available on the master's, educational specialist and doctoral levels (Ed.D. and Ph.D.) for elementary, middle, or junior high school, high school and junior colleges. Those interested in any of these programs should contact an adviser in mathematics education.

Nursery School

Both undergraduate and graduate majors in elementary education may specialize their course work for an emphasis in nursery school.

Undergraduates may enter the program in elementary education with Nursery School approval, or may enter a combined program to earn a bachelor's degree in Family and Consumer Resources (Human Development and Relationships) with a teaching certificate through the College of Education.

Both Master of Arts in Teaching and Master of Education degree programs with nursery school emphasis are available, as well as a Master of Education in Pre-School and Parent Education. Graduate students working toward continuing certification may also earn an early childhood endorsement.

For all these programs, field placements and/or student teaching may be at the College of Education Nursery School at Jeffries Homes.

For further information, see the advising secretary in Room 212, Education Building.

Special Education Curricula

Programs in Special Education prepare teachers for work with all types of exceptional children, in settings from education 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.

Undergraduate programs are offered in multiply impaired (endorsement in mentally impaired and physically or visually impaired), in speech pathology and in visually impaired. The program for the multiply impaired includes training across broad areas of exceptionality (learning impairments, developmental and behavioral disorders, physical impairments) and is based on field experiences with multiply impaired learners.

Undergraduates in multiply impaired and visually impaired programs are advised by a special education adviser in Room 212, Education Building. Students majoring in speech pathology are advised by the faculty of Communication Disorders and Sciences, Room 555, Alex Manoogian Hall. Speech pathology students must complete the master's degree program to be recommended for full certification by the State of Michigan as a speech-language pathologist.

— Nursery School Approval

Students in Special Education who wish 'Nursery School Approval' on their transcripts should consult a special education adviser. A sequence of specific courses in early childhood education and pre-primary special education is required for this approval.

— General Education

Below are required general education courses for special education undergraduates, most of which should be completed prior to admission to the College of Education. Students should consult an adviser regarding other courses which will fulfill the general education requirement.

Freshman Composition
English Course—200 level
Effective Speech
Literature for Children
Introductory Biology
First Aid
Introductory Psychology
Mathematics for Elementary School Teachers I
Mathematics for Elementary School Teachers II
Maturation and Development of the Individual (FAC 580)

— 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 school or classes for exceptional children. Consult with an adviser in Special Education for specific requirements.

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 faculty of the Division of Teacher Education.

Consult a graduate adviser for detailed information about specialization and areas of concentration.

Master's Degrees

The **Master of Arts in Teaching** degree is designed for students who have completed a bachelor's degree in non-education programs and who desire both a master's degree in education and a Michigan Provisional Teaching Certificate. Teacher certification can be earned prior to completion of the master's degree.

The various MAT programs consist of graduate level courses (several involve work with children in school settings) and a student teaching experience for one semester. See preceding sections for material on teaching certificates (page 82), student teaching (page 83), and the *Writing Competency Examination* (page 63).

Master of Arts in Teaching Degree with Elementary Certificate
Bilingual-Bicultural Education
Elementary Education
Mathematics Education

Science Education
Master of Arts in Teaching Degree with Secondary Certificate

Bilingual-Bicultural Education
Business Education
Distributive Education
English Education
Family Life Education
Health Occupations Education
Industrial Education
Mathematics Education
Science Education
Social Studies Education
Master of Education Degree
Adult and Continuing Education
Art Education
Bilingual-Bicultural Education
Business Education
Distributive Education
Elementary Education—also provides opportunity for emphasis in childhood education, language arts and reading, literature for children, mathematics education, science education, and social studies education
Elementary Reading
English Education—Secondary
Teaching English as a Second Language/Foreign Language
Family Life Education
Foreign Language Education—Secondary
Industrial Education
Mathematics Education
Preschool and Parent Education
Reading—Secondary
Science Education
Social Studies Education
Special Education—
Developmental Disabilities
Emotionally Impaired
Gifted Child Education
Learning Disabilities
Speech Impaired
Visually Impaired

Adult and Continuing Education

The Master of Education program in Adult and Continuing Education is designed to develop competent practitioners and well-rounded educational leaders in adult and continuing education and human resources development. This program is for persons now occupying or preparing for such positions as labor educator, education director in volunteer organizations, health organizations or in the armed forces, in museums, libraries, community service agencies, trade and technical schools, and government programs. Areas of emphasis are bilingual literacy and life skills, parenting, gerontology, labor education, medical education, or community development. For program information or referral to an adviser, see the advising secretary in Room 212, Education Building.

Art Education

For admission to the Master of Education in Art Education degree program the applicant must have: a baccalaureate degree from a college or university of recognized standing; adequate preparation and ability to pursue graduate study; an art major; and a teaching certificate. Entering students should make an appointment with an Art Education graduate adviser for assistance, Room 163, Art Building.

A minimum of thirty credits are required for the degree. Six credits are required in education foundation courses for the general professional sequence and a minimum of fifteen credits are required for the

major area of study, art education, including three required courses: TED 700, TED 799, and AED 740. The remaining sixteen credits are elective. Students are requested to work closely with a graduate adviser to design an individualized curriculum to meet their particular needs. Various art education options and depth studies are available. Emphasis is placed on a relevant curriculum to enhance student's capacity to: contribute to the field of art education; extend their own abilities as artists and teachers of art; and to produce a related essay or project of high quality.

Before becoming a candidate the student must complete twelve credits, have an authorized *Plan of Work* and a portfolio of quality art work accepted.

Business or Distributive Education

In addition to completing the admission procedures of the University Admissions Office and the College of Education prerequisites, a student seeking admission to the Master of Education program in business or distributive education must be interviewed by a program adviser. A *Plan of Work* must be completed and approved before registering for the second term in Business/Distributive Education. Students should refer to the appropriate section of this bulletin for general requirements and consult a program adviser for specific requirements.

The Master of Arts in Teaching program is designed for students who have completed a bachelor's degree with a teaching major in business administration. Applicants are selected for the MAT program from individuals who are working in the field of business and who want to become business or distributive education teachers. The program consists of forty-eight credits of *graduate level* courses including a professional field experience for one high school semester. *Undergraduate deficiencies in the teaching major or minor must be completed in addition to the forty-eight credits of graduate work.*

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-consultants. 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.

A four credit practicum is required by state law for learning disability certification. While some summer placements are available, placement cannot be assured. Applications for placement during the regular school year must be submitted during pre-registration for the appropriate term. Applications for summer placement are available from advisers between February 1 and April 15.

Preparation programs for the developmentally disabled (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.

As interest has grown in the specialized delivery of education services for gifted and talented students, the Special Education unit has developed and implemented a graduate specialization in Gifted Child Education. Admission to this area of specialization is open to both teachers and administrators with or without previous training in special education. Specific course requirements for this major area may be applied to both master's and education specialist programs, and may be applicable to students in other certificate programs. No certification or endorsement is awarded as none currently exists at the state level. For details, contact the program area adviser.

Graduate advisers are:

Children with physical impairments.....	Pearson
Developmentally disabled	Zumberg
Emotionally impaired	Asa Brown, Coleman, Wood
Gifted child	Buescher
Learning impaired	Collin, Parres
Visually impaired	Hanninen
Speech impaired (communication disorders and sciences)	Leith, Bliss, Dowling, Dreyer, Falk



Education Specialist Certificate — A Post-Master's Program

The Division of Teacher Education offers the following areas of specialization in the Education Specialist Certificate program.

- Elementary Curriculum and Instruction
- Mathematics Education
- Reading
- Science Education
- Secondary Curriculum and Instruction
- Secondary English Education
 - Teaching English as a Second Language/Foreign Language
- Social Studies Education
- Special Education
- Vocational and Applied Arts Education
 - Business/Distributive Education
 - Data Processing
 - Family Life Education
 - Industrial Education

See the preceding section of this bulletin for information on general requirements.

Doctoral Programs

The Doctor of Education (Ed.D) and the Doctor of Philosophy (Ph.D) programs prepare professional educators for positions in institutions of higher learning, education renewal centers, state and national education agencies, and intermediate and local school districts. Advanced programs are designed for those individuals who are committed to the educational renewal of urban America; whose career goals emphasize the development and improvement of curriculum and instruction; 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. Based on pure and applied research in instruction and curriculum, doctoral study incorporates formal classroom instruction, independent study, and direct, clinical experience in a variety of field settings. It reflects (1) the legitimacy of the emerging pattern of inter-institutional partnerships in teacher education at all levels; (2) the significance of the polyracial and polycultural nature of the metropolitan society; and (3) the importance of the integration of theory, research, and practice as the basis for sound profession development.

The doctoral major in curriculum development makes possible specialization in:

- Bilingual-Bicultural Education (Ed.D. only)
- Elementary Curriculum and Instruction
- English Education
- Teaching English as a Second Language/Foreign Language
- Foreign Language Education
- K-12 Curriculum
- Mathematics Education
- Science Education
- Secondary Curriculum and Instruction
- Social Studies Education
- Vocational and Applied Arts Education

The Ed.D. in Reading is designed to prepare reading clinicians, reading supervisors and consultants, and college university teacher educators.

Students interested in college teaching in special education are urged to see doctoral advisers in that program area.

A doctoral program is offered in vocational and applied arts education.

Information regarding doctoral programs is available from the Office of the Division Head, Teacher Education Division, Room 241, Education Building.

COURSES OF INSTRUCTION¹ Teacher Education Division (TED)

109. Practicum for School Paraprofessionals I. Cr. 1-6(Max. 8)
Prereq: consent of instructor. Offered for S and U grades only. For school paraprofessionals in a teacher education program. Supervision of school paraprofessionals in classroom settings. Occasional seminars on paraprofessional concerns, such as working with children and with school personnel, classroom management.

110. Multi-Causality Career Development. Cr. 2-12
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.

209. Practicum for School Paraprofessionals II. Cr. 1-6(Max. 8)
Prereq: sophomore standing, consent of instructor. Offered for S and U grades only. For school paraprofessionals in a teacher education program. Supervision of school paraprofessionals in classroom settings. Occasional seminars continue exploration of topics studied in TED 109.

225. Introduction to Education. Cr. 3
Exploration of teaching and schools in today's and tomorrow's society. Open to all students interested in discipline of professional education as a tool to understanding our multicultural society.

355. Teaching: Theory and Practice. Cr. 2-4
Prereq: admission to teacher certification program; written consent of program coordinator. Structure, function and purpose of educational institutions in society; introduction to instructional strategies appropriate to elementary and secondary schools. On-campus classroom study combined with laboratory experiences in both Detroit and suburban schools.

356. Pre-Student Teaching I. Cr. 3
Prereq: written consent of program coordinator. Continuation of TED 355. Second phase of pre-student teaching field experience.

357. Pre-Student Teaching II. Cr. 1-8
Prereq: written consent of program coordinator. For students who need additional study and/or laboratory field experience in the professional education sequence.

390. Directed Study. Cr. 1-6(Max. 6)
Prereq: written consent of adviser.

418. Student Teaching and Seminar - Elementary Schools. Cr. 1-10
Prereq: admission to student teaching. Offered for S and U grades only.

419. Student Teaching and Seminar - Secondary Schools. Cr. 1-10

¹ See page -633 for interpretation of numbering system, signs and abbreviations

Prereq: admission to student teaching. Offered for S and U grades only.

430. (H E 330) Health of the School Child. Cr. 3

Prereq: HEA 231 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.

455. Directed Teaching and Conference. Cr. 1-10

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, discussion of educational issues.

456. Senior Seminar. Cr. 2-4

Prereq: admission to student teaching; coreq: TED 455 or equiv. Exploration of contemporary issues relevant to the teaching profession. Topics evolve from joint planning of students and faculty involved in teacher certification program.

457. Teaching Internships and Seminar. Cr. 1-10(Max. 12)

Prereq: admission to student teaching and consent of program coordinator. Offered for S and U grades only. Advanced internship or directed teaching in schools at level for which students are preparing for certification; discussion of educational issues.

501. Methods of Teaching Health Occupations Education. Cr. 4

Offered for S and U grades only. For health occupations education majors only. Basic principles, methods of instruction, and organization of material in allied health occupations. Consideration given to practical application of the Michigan minimal objectives for health occupation education programs.

511. (DNC 532) Dance and Other Arts in Folk Culture. Cr. 3

Prereq: DNC 111 or consent of instructor. Basic art forms, costuming, crafts, designs indigenous to various folk cultures and their relationship to folk dance.

514. Education Workshop. Cr. 1-8(Max. 12)

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.

515. Analysis of Elementary School Teaching. Cr. 1-3

Prereq: consent of adviser. Overview of structure and purposes of American education; analysis of teaching including classroom management and unit and lesson planning in relation to the elementary school. Three semester credits are required for admission to an internship or student teaching experience.

516. Analysis of Secondary School Teaching. Cr. 3

Prereq: consent of adviser. Overview of structure and purposes of American education. Analysis of instructional objectives. Analysis of classroom communication, both verbal and non verbal, in relation to secondary school teaching.

518. Workshop in Intergroup Relations. Cr. 2-6(Max. 6)

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.

520. Laboratory Workshop in Human Interaction. Cr. 2-6(Max. 6)

Prereq: written consent of instructor. Small, intensive, self-created groups such as laboratories in which members learn how their behavior is seen by and affects others; feelings and attitudes that determine behavior; more appropriate behavior and its application outside the laboratory.

525. Teaching the Emerging Adolescent in Middle School. Cr. 3

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.

526. Theory and Practice of Middle School Teaching. Cr. 1-4

Prereq: teaching experience or consent of adviser. Open only to teams of teachers from middle schools. Local school workshop on the middle school.

529. Directed Teaching for In-Service Teachers. Cr. 3-10

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.

530. (H E 560) Role of the Teacher in School Health. Cr. 2

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.

533. (H E 643) Health Problems of Children and Youth. Cr. 2

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.

544. (DNC 544) Dance for Elementary Music Teachers. Cr. 2

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.

547. Teaching Internship and Seminar. Cr. 1-8(Max. 12)

Advanced internship or directed teaching in schools at level for which students are preparing for certification. Seminar for discussion of educational issues.

553. Educational Facilities of Henry Ford Museum and Greenfield Village. Cr. 2-3

Prereq: senior standing or teaching experience.

555. Teaching in Secondary Schools I. Cr. 3

Prereq: written consent of program coordinator. Methods and materials of teaching secondary subject matter.

556. Teaching in Secondary Schools II. Cr. 3

Prereq: written consent of program coordinator. Continuation of TED 555. Refinement of techniques and strategies useful in teaching secondary subject matter.

574. (D E 574) Problems in Driver Education and Traffic Safety. Cr. 3

Prereq: TED 594. Issues and concerns in professional preparation to meet traffic safety needs of schools and communities.

575. (D E 575) Seminar in Driver Education and Traffic Safety. Cr. 3

Prereq: TED 574. Behavioral, administrative, and professional aspects of the teaching role in driver and traffic safety education.

580. (P E 555) Movement Education for Children. Cr. 2

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.

581. (DNC 581) Creative Dance for Children. Cr. 3

Approaches to creative dance experiences for children stressing the development of aesthetic and kinesthetic awareness. Focus on comprehensive arts and curriculum related materials.

582. (DNC 582) Creative Movement for the Pre-School Child I. Cr. 3

Creative dance activities; manipulative, musical, imaginative and kinesthetic approaches to movement.

594. (D E 573) Teaching Driver Education and Traffic Safety. Cr. 3

Prereq: valid Michigan driver's license. Teacher preparation to organize and teach driver education and traffic safety.

598. Field Studies in Education. Cr. 1-8(Max. 8)

Prereq: consent of adviser or instructor. Supervised professional study in field settings.

602. Computer Applications in Teaching I. Cr. 3

Prereq: CSC 501 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.

603. Computer Applications in Teaching II. Cr. 3

Prereq: TED 602 or equiv. Development and evaluation of computer-based instructional systems for use with pupils in their schools.

613. Developing Curriculum in the Affective Domain. Cr. 3

Philosophy and theory underlying the affective domain; the impetus and means of evaluative and analytical thinking used as a vehicle that provides teachers with instructional strategies in building K-12 curriculum.

614. Local School Curriculum Planning. Cr. 1-6(Max. 12)

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.

616. Communication, Popular Culture and the Curriculum. Cr. 2-4

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.

617. Using the Newspaper for Learning. Cr. 2-4

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.

639. Black Culture and the Secondary School Curriculum. Cr. 2-4

Prereq: directed teaching experience. Examination of Afro-American culture with special emphasis on literature. Selection and utilization of materials for the secondary school classroom.

680. (SPD 680) Colloquium in Cultural Influences in Communicative Disorders. Cr. 1

Lectures on major cultures in the United States and their specific influences on the development and treatment of communicative disorders. Small group discussions pertaining to resolving clinical problems encountered when treatment procedures conflict with cultural demands.

700. Introductory Master's Seminar. Cr. 2-3

Prereq: admission to a master's degree program in Teacher Education Division.

701. Field Study in Computer Applications in Teaching. Cr. 3

Prereq: TED 602 or equiv.; access to computer facilities. Supervised professional study in field settings; development, implementation and evaluation of computer-based instructional materials.

702. Internship and Seminar. Cr. 1-10(Max. 10)

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.

704. Role of the Team Leader. Cr. 3

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.

705. Modern Trends in Secondary Education. Cr. 3

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.

715. Cooperative Planning in the Classroom. Cr. 2-4

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.

721. Advanced Theory and Practice in Teacher Education. Cr. 1-8(Max. 12)

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.

730. Systematic Teaching Strategies. Cr. 3

Prereq: admission to graduate division. Development of a systematic approach to teaching/managing social behavior by integrating policy, record systems and program strategies as they affect socio-cultural behaviors in urban schools.

781. Curriculum Planning for Alternative Schools. Cr. 3

Prereq: admission to graduate school. Concepts of curriculum planning; the means to implement programs in alternative schools.

790. Directed Study. Cr. 1-8(Max. 8)

Prereq: written consent of adviser and graduate officer on completed petition and authorization for Directed Study prior to registration.

796. Directed Research. Cr. 1-8(Max. 8)

Prereq: written consent of adviser and Dean of Graduate Studies or Graduate Officer on Petition and Authorization for Directed Study prior to registration.

798. Field Studies. Cr. 1-6(Max. 6)

Prereq: consent of adviser or supervising instructor. Supervised professional study in field situations.

799. Terminal Master's Seminar and Essay or Project. Cr. 3

Prereq: consent of adviser.

811. Supervision of Student Teachers. Cr. 3

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.

812. Issues in Secondary Curriculum. Cr. 3

Current issues in middle, junior high, and high school curriculum (general education, vocational education, individualization, electives and balance, informal curriculum, minimal competence). Analysis of modern innovative programs, especially in English, mathematics, science, and social studies.

813. Basic Principles of Curriculum and Instruction. Cr. 3

Theoretical bases of curricular development and instructional innovation. Their application to the tasks of the curriculum maker explored as various education positions are taken and examined.

814. Problems in Curriculum Construction. Cr. 3

Prereq: teaching experience, TED 813 or consent of instructor. Open only 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.

817. Advanced Seminar. Cr. 2-6 (Max. 6)

Prereq: admission to education specialist or doctoral program and consent of adviser. Topics to be announced in *Schedule of Classes*.

827. Seminar: Issues in Curriculum and Instruction. Cr. 2-6 (Max. 8)

For specialist and doctoral students. Analysis of basic issues in curriculum and instruction and their implications for program: early childhood, K-12, adult curricula. Critique of recent research and development efforts. Application to problems of leadership in school-wide curricular improvements.

828. Research Seminar: Curriculum and Instruction I. Cr. 2

Prereq: EER 763, EER 764. Methods of research in curriculum and instruction. Critical review of types of research in curriculum and instruction. Research design.

829. Research Seminar: Curriculum and Instruction II. Cr. 1-3

Prereq: TED 828. Application of principles of research design. Presentation of illustrative research proposals: reviews and critiques.

830. Advanced Clinic in the Analysis of Teaching. Cr. 1-4

Prereq: admission to Teacher Education doctoral or Education Specialist program. Research instruments for analysis and assessment of teacher effectiveness, and their use with pre-service and in-service teachers.

851. Theory and Process of Teaching. Cr. 3

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 in polycultural settings.

52. Advanced Practicum. Cr. 1-8

Prereq: TED 851 and consent of adviser. Involvement for at least one semester 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.

890. Survey of Career and Vocational Educational Programs. Cr. 1-6 (Max. 6)

Philosophy, objectives, nature, and scope of training programs sponsored by industry, business, and labor. Organized trips to survey selected programs in Detroit area.

899. Master's Thesis Research and Seminar. Cr. 1-8 (8 req.)

Prereq: consent of adviser.

913. Doctoral Seminar in Curriculum and Instruction. Cr. 2

Prereq: formal admission to a doctoral program in education. Open only to doctoral majors in other areas of concentration. An

examination of curriculum theory and concepts that apply to the development of content and instructional strategies relevant to contemporary education.

996. Directed Research. Cr. 1-8 (Max. 8)

Prereq: written consent of adviser and Dean of Graduate Studies or Graduate Officer on Petition and Authorization for Directed Study prior to registration.

999. Doctoral Dissertation Research and Direction. Cr. 1-16 (Ed.D., 20 req.; Ph.D., 30 req.)

Prereq: consent of adviser. Offered for S and U grades only.

Adult And Continuing Education (ACE)

614. Adult Basic Education: Life Skills. Cr. 3-6

Teaching strategies and instructional materials. Selecting and developing learning environments for basic education programs. Diagnosis, delivery and evaluation.

636. Internship in Adult and Continuing Education. Cr. 3-6

Prereq: AGE 712. Offered for S and U grades only. Intern teaching at selected sites; seminars and conferences on methods of planning, instructing, and evaluating.

710. Adult and Continuing Education in a Changing Society. Cr. 3

Prereq: consent of adviser. Examination and analysis of adult education practices, trends and issues, and their relationship to a constantly changing society.

711. Adult Learning. Cr. 2-3

Diagnosing adult interests and learning styles; critically reviewing inventories; reviewing research; determining goals and objectives for learning in diverse environments in adult and continuing education.

712. Adult and Continuing Education Methods. Cr. 3

Prereq: graduate standing. Survey and laboratory practice in methods of designing and conducting courses, group discussions, informal groups, workshops, seminars, lectures, audience participation, conferences, on-the-job training, case study, mass media programs, large meetings and community development.

814. Survey of Programs for the Undereducated Adult. Cr. 2

Prereq: consent of adviser. Exploration of magnitude, distribution, character, causes, and consequences of cultural and educational deprivation with special emphasis on basic education.

875. Issues in Adult Education. Cr. 2

Prereq: doctoral candidate with 18 credits completed beyond the master's degree. Required of all doctoral students in higher education concentration. Evaluation of differing goals in adult and continuing education. Review of current literature in adult learning, study of contrasting organizational structures and styles.

890. Seminar in Adult and Continuing Education Cr. 3

Prereq: ACE 875. Preparation and evaluation of research papers in adult and continuing education.

Art Education (AED)

117. Methods and Materials of Sculptural Expression. Cr. 3

Material fee as indicated in *Schedule of Classes*. Required for certification in Art Education and prior to student teaching. Exploration of three dimensional forms using various media with an emphasis on sculptural concepts, materials, tools and techniques related to teaching sculpture on the elementary and secondary level.

118. Perception and Expression Through Drawing. Cr. 3

Material fee as indicated in *Schedule of Classes*. Required for certification in Art Education and prior to student teaching. Study of expository and aesthetic drawing including visual illusion, observation, the child's developmental use of symbols and the perceptual interpretation of artist's drawings from various times and cultures. A relationship of two-dimensional concepts within the art education curriculum.

211. Elementary Art Teaching Laboratory. Cr. 3

Prereq: AED 117 and 118 and sophomore standing or above. Material fee as indicated in *Schedule of Classes*. Required for certification in Art Education and prior to student teaching. Laboratory experiences in teaching art to upper elementary children to include planning, producing visual aids, evaluating children's work and self-assessment in teaching by using video tape recording equipment.

212. Secondary Art Teaching Laboratory. Cr. 3

Prereq: AED 117 and 118 with sophomore standing or above. Material fee as indicated in *Schedule of Classes*. Alternate requirement to AED 211. Laboratory experience in teaching art to middle school or high school students to include planning, producing visual aids, evaluating adolescent work and self-assessment in teaching by using video tape recording equipment.

213. Visual Communication. Cr. 3

Material fee as indicated in *Schedule of Classes*. Required for certification in Art Education. The use, design and organization of visual symbols to complement verbal-aural expression and transmission of ideas.

311. Introduction to Art Education. Cr. 1

Required of all beginning Art Education majors. Lectures, discussions and readings concerned with the history and philosophies of art education.

411. Theory and Practice in Art Education. Cr. 2

Prereq: AED 211 or 212; prereq. or coreq: student teaching. Required for certification in Art Education. An analysis of writings and experience: interviews, field trips and involvement in alternative settings in art education. Independent study problems required.

476. (IED 476) Materials and Processes - Wood, Sheet Metals and Multi-Media. Cr. 6

Material fee as indicated in *Schedule of Classes*. Development of products for industrial arts and arts and crafts programs utilizing wood, sheet metals, and multi-media materials appropriate for use in school settings.

510. Art for Special Groups. Cr. 1-3(Max. 9)

Material fee as indicated in *Schedule of Classes*. Art experiences designed for the specific needs of special groups. Topics to be announced in *Schedule of Classes*.

511. Art for Occupational Therapy. Cr. 2-3

Material fee as indicated in *Schedule of Classes*. Selected experiences with two- and three-dimensional art forms designed for varied professional uses by occupational therapists.

512. Art for Special Education. Cr. 2-3

Material fee as indicated in *Schedule of Classes*. Students will experience a wide variety of two- and three-dimensional art forms selected and designed specifically for use with exceptional children and adults as a way to produce self-esteem, encourage learning and provide therapeutic value.

513. Visual Communication - Advanced. Cr. 3

Prereq: AED 213 or teaching experience. Material fee as indicated in *Schedule of Classes*. Exhibits and displays as aesthetic media for communication and teaching tools. Laboratory activities include: exhibit design, lettering, layout and technical problems of printing reproduction.

517. Design in Fibers. Cr. 3

Material fee as indicated in *Schedule of Classes*. Required for certification in Art Education. Comprehensive exploration of fiber-fabric art forms: applique, trapunto, stitchery, dyeing, soft sculpture, weaving, wrapping, hooking, and others. Each student will learn basic techniques and also select several areas for in-depth study. Safety, special tools, materials, techniques and resources for teaching will be investigated.

519. Light, Sound, Space and Motion. (IT 519). Cr. 3

Required for certification in Art Education. Material fee as indicated in *Schedule of Classes*. Laboratory experience in planning and producing films and slides, with and without a camera, for artistic expression and educational communication. Preparing a storyboard, animation in Super 8mm, marking on 16mm film, titling, recording and synchronizing sound tracks, marking on 2x2 slides, photographing 35mm slides.

522. Painting - Creative Aspects. Cr. 3

Material fee as indicated in *Schedule of Classes*. Painting studied as an expressive media. Historical survey of creative approaches and results. Individual development as a painter emphasizing subject selection, composition, color invention and technique. Application of experiences and studies to the teaching of painting in schools.

523. Ceramics Education I. Cr. 3

Required for certification in Art Education. Material fee as indicated in *Schedule of Classes*. An overview of handbuilding processes, various firing procedures including blackware and raku, decorating, glazing and equipment maintenance. Emphasis placed on the educational benefits and procedures for working with people of various ages and the management of materials for teaching.

524. Ceramic Glaze Development for School Use. Cr. 1

Prereq: AED 523 or equiv. Material fee as indicated in *Schedule of Classes*. Glaze experimentation in a studio setting, developing glaze bases, colors and textures. Relation of raw material recipes to empirical formulas.

526. Design in Wood. Cr. 3

Material fee as indicated in *Schedule of Classes*. Exploration of wood as a functional and aesthetic medium for use in elementary and secondary schools.

527. Designing for Personal Adornment. Cr. 3

Required for certification in Art Education. Material fee as indicated in *Schedule of Classes*. Studio exploration of materials and processes suitable for production of objects of personal adornment in the public schools. Concept and skill development using metals and other materials: paper, wood, fibers, and found-objects.

528. Printmaking. Cr. 3

Prereq: AED 118 or 522. Material fee as indicated in *Schedule of Classes*. Required for certification in Art Education. Studio exploration of relief, planographic, intaglio and stencil processes as methods of reproduction for artistic expression; methods in those

processes particularly suitable for the classroom.

529. Photo-Screen Processes for the Classroom. Cr. 1-3

Prereq: AED 528 or consent of instructor. Material fee as indicated in *Schedule of Classes*. Study of light-sensitive stencil processes in screen printing in both emulsion and film form. The preparation of film positives through hand and photographic means for development of stencils. The printing of these processes for functional and aesthetic purposes.

530. Integrating Art, Dance, and Music. (DNC 546). Cr. 3

Material fee as indicated in *Schedule of Classes*. Experiments in designing and producing art expressions which are integrated with and enhance other art forms. Students gain skills in each art form and practice developing expressions combining two to three arts.

610. Art and Science in Education. (SCE 610). Cr. 3-5

Prereq: teaching experience or consent of instructor. Material fee as indicated in *Schedule of Classes*. A laboratory-lecture class involving field trips: technological/industrial; museums; nature trails.

613. Framing, Matting, Mounting: Methods of Presenting Works of Art. Cr. 3

Material fee as indicated in *Schedule of Classes*. Framing and related skills essential to the presentation of paintings, prints, photographs and the like.

617. Design in Fibers - Advanced. Cr. 3

Prereq: AED 517. Material fee as indicated in *Schedule of Classes*. Advanced study of and work with fiber-fabric art forms. Individual creative self-direction essential.

619. Light, Sound, Space and Motion - Advanced. Cr. 3

Prereq: AED 519. Material fee as indicated in *Schedule of Classes*. Experiments in multiple projections with slides and advanced problems in animation. Design of projection materials for educational use and plans for school film programs.

620. Creative Use of Visual Aids in Teaching Art. Cr. 3

Material fee as indicated in *Schedule of Classes*. Design and use of television, film, slides, overhead transparencies and other projection media for the communication of information in art. Design of materials for use with technological methods; varied use of technological devices.

622. Drawing and Watercolor - Field Studies. Cr. 3

Material fee as indicated in *Schedule of Classes*. Individual growth and learning for beginning and advanced students. Field trip/work sessions at selected rural and urban sites to develop visual abilities and awareness of environmental relationships. Classroom sessions include lectures, critiques; analysis of the two-dimensional creative process and study of unique approaches to watercolor in the art curriculum.

623. Ceramics Education II. Cr. 3 (Max. 9)

Prereq: AED 523. Material fee as indicated in *Schedule of Classes*. Emphasis is placed on throwing procedures, the use of various clay bodies, firing at various temperatures, making and using tools, ceramic history and its use and benefits in a school curriculum.

625. Aspects of Ceramics. Cr. 3-9 (Max. 9)

Prereq: consent of instructor. Material fee as indicated in *Schedule of Classes*. Various aspects of ceramics chosen to develop the students' understanding of the potential for ceramic education. Topics to be announced in *Schedule of Classes*.

627. Advanced Crafts. Cr. 3

Prereq: AED 526 and 527. Material fee as indicated in *Schedule of Classes*. In-depth studies in crafts growing out of interest areas established in basic courses. Development of artistic capability and teaching expertise.

628. Printmaking - Advanced. Cr. 3

Prereq: AED 528. Material fee as indicated in *Schedule of Classes*. Advanced laboratory and lecture course on printmaking methods and materials particularly adaptable for the public schools. In-depth work in lithography, intaglio, relief and serigraphy.

723. Advanced Ceramics Education. Cr. 3 (Max. 9)

Prereq: consent of instructor; AED 623 and 524. Material fee as indicated in *Schedule of Classes*. Ceramic procedures on an advanced level. Emphasis on individual development and specific approaches to teaching. Students will choose areas of concentration relevant to their own situation.

740. Art Trends and Art Education. Cr. 3

Required for Master of Education degree. Slide lectures with discussions illustrating the evolutionary development of contemporary painting and sculpture, the new role of the artist in a modern industrial society and criteria for the visual arts of the 1980s. The application of new information is related to the school art curriculum. Individual verbal-visual projects emphasizing the development of the communication skills are required.

750. Contemporary Trends - Architecture and Applied Arts. Cr. 3

A survey of architecture, crafts, machine arts, urban aesthetics and related fields of the twentieth century in their social, technological and cultural development. Illustrated presentations based on subject matter, teaching methods and visual materials will be assigned.

760. Curriculum Problems and Design. Cr. 3

Material fee as indicated in *Schedule of Classes*. Art education as part of the total school curriculum. Purposes, content, development of meaningful sequences.

770. Advanced Graduate Problems. Cr. 3-12 (Max. 12)

Prereq: prior experience as announced in *Schedule of Classes*. Material fee as indicated in *Schedule of Classes*. Pursuit of specific problems in depth. Laboratory hours coordinated with regularly scheduled classes in the selected area.

Bilingual/Bicultural Education (BBE)

502. Effective Involvement of Parents in School and Community. Cr. 3

Concepts of parenting and parent intervention. Determination of methods to maximize parent participation in the educational process of bilingual/bicultural students.

550. Introduction to Bilingual/Bicultural Education. Cr. 3

Survey of the history and legislative background of bilingual/bicultural education in the United States. Emphasis on the foundations, methods, concepts and theories of bilingual/bicultural education.

656. Elementary Bilingual/Bicultural Education: Methods. Cr. 3

Prereq: admission to a bilingual endorsement program. Utilization of traditional and innovative materials, techniques and methods used in teaching elementary school subjects in a bilingual education program.

657. Secondary Bilingual/Bicultural Education: Methods. Cr. 3

Utilization of traditional and innovative materials, techniques and methods for teaching secondary school subjects in a bilingual education program.

659. Culture and Language in Bilingual/Bicultural Education. Cr. 1-3

Prereq: BBE 656 or consent of adviser. Research and application of multicultural activities for designing processes to bring language and culture, and instruction in English, into the classroom.

660. Internship in Bilingual/Bicultural Teaching. Cr. 2-12

Prereq: admission to bilingual internship. Offered for S and U grades only. Internship in a bilingual, multicultural setting; assessment of the cultural, educational, and linguistic needs of students of limited English-speaking ability.

670. Seminar in Cultural Awareness. Cr. 3

Understanding intergroup relations and the appreciation of cultural diversity in a multicultural society such as the United States. Selected topics offered on a semester or yearly basis.

785. Applied Linguistics: Issues in Bilingual Education. Cr. 3

Current major models of applied English linguistics, contrasting linguistics with special reference to the comparison of English and linguistic minority languages.

901. Theoretical Implications of Bilingual/Bicultural Education. Cr. 3

Prereq: admission to doctoral program. Theoretical foundations for the development of bilingual/bicultural and multicultural education programs in our schools.

902. Public Policy and Bilingual/Bicultural Education. Cr. 3

Prereq: BBE 901. Evolution of bilingual education policy. Program implementation against background of the culture of the school, community and state.

903. Advanced Seminar in Bilingual/Bicultural Education. Cr. 2-4 (Max. 12)

Prereq: consent of adviser. Advanced seminar for doctoral students in the bilingual, multicultural education program. Topics to be announced in *Schedule of Classes*.

Business And Distributive Education (BDE)

330. Typewriting for Teachers. Cr. 2

Prereq: knowledge of touch typewriting and consent of instructor. Offered for S and U grades only. No credit for major or minor in business education. Selected problems requiring application of typewriting (keyboarding) skills and techniques to prepare and edit reports, projects, essays, term papers, and instructional materials.

530. Business/Distributive Education Word Processing I: Typewriting. Cr. 3

Prereq: consent of adviser and knowledge of touch system in use of typewriter. Principles and procedures for learning and teaching a basic and advanced process for using the typewriter to compose and copy business and personal materials.

531. Foundations of Business/Distributive Education. Cr. 3

Prereq: BDE 530 or consent of instructor; satisfactory skill in typing and an office or distributive occupation. Structure, function and purpose of educational institutions in society; role of business/distributive education in an educational setting; some field and laboratory experiences.

532. Business/Distributive Education Methods: Typewriting. Cr. 3

Prereq: BDE 530, 531; or consent of instructor; coreq: 533 or 553.

How to determine and develop necessary typewriting (keyboarding) skills for office occupations. Methods, materials, and equipment for teaching typewriting (keyboarding) and related skills.

533. Business/Distributive Education Methods - General Cr. 4

Prereq: satisfactory skill in typing and an office or distributive occupation. Coreq: BDE 532. Determination and development of needed minimum skills for beginning office occupations. Methods, materials and equipment for teaching selected office occupation subjects. Students demonstrate selected course objectives in a field setting.

535. Business/Distributive Education Word Processing II: Recording/Transcribing. Cr. 3

Prereq: BDE 530 or consent of instructor. Principles and procedures for learning and teaching basic and advanced processes for recording and transcribing oral or symbol languages. Equipment includes use of voice recording and transcribing equipment. Extensive practice in dictating, editing and transcribing business materials.

537. Business/Distributive Education Word Processing III: Principles. Cr. 3

Prereq: BDE 535; or course in typewriting and consent of instructor. Principles and concepts in the design, utilization and evaluation of word processing systems in business, government, and education. Laboratory and field trips familiarize student with current equipment.

538. Business/Distributive Education Word Processing IV. Cr. 3

Prereq: consent of instructor. Principles and procedures for designing, teaching and evaluating a competency-based word processing program in a business or educational setting.

539. Strategies of Office Procedures. Cr. 3

Prereq: consent of instructor. Principles and procedures for learning and teaching current and emerging clerical office procedures.

553. Business/Distributive Education Methods - Marketing and Distributive Education. Cr. 4

Prereq: satisfactory skill in typing and a distributive occupation; coreq: BDE 532. Determination and development of needed minimum skills for beginning distributive occupations. Methods, materials, and equipment for teaching selected distributive occupation subjects. Students demonstrate selected course objectives in a field setting.

630. Business/Distributive Education Cooperative Internship. Cr. 1-6

Prereq: consent of instructor. Supervised work experience designed to correlate classroom theory with current word processing, secretarial, or selected distributive occupations.

633. Special Problems in Business Education. Cr. 1-6 (Max. 6, M.Ed.; max. 12, other advanced degree programs.)

Prereq: business teaching experience, consent of adviser. Special workshops and short term seminars in business subjects.

653. Special Problems in Distributive Education. Cr. 1-6 (Max. 6, M.Ed.; max. 12, other advanced degree programs)

Prereq: business teaching experience, consent of instructor. Special workshops and short term seminars in distributive subjects.

798. Field Studies in Business or Distributive Education. Cr. 1-8

Prereq: consent of adviser. Supervised professional study requiring substantial periods of time in business or distributive education in local schools or in community, state, nation or foreign countries; observation, collection and analysis of data.

836. Honors Projects in Business Education. Cr. 1-6 (Max. 6)

Prereq: written consent of adviser for advanced graduate students.

356. Honors Projects in Distributive Education. Cr. 1-6 (Max. 6)
Prereq: written consent of adviser for advanced graduate students.

Elementary Education (ELE)

302. Early Childhood Education. Cr. 2

Growth, learning, and personality development of young children. Role of the teacher in program development, guidance, school-family relationships and interagency cooperation.

320. Literature for Children. Cr. 3

Literature appropriate for use with children from preprimary through middle school age.

330. Teaching Language Arts: Preprimary-8. Cr. 2

Developing communication skills in the classroom: thinking, listening, speaking, and writing.

332. Teaching Reading: Preprimary-8. Cr. 3

Objectives, curriculum content, teaching strategies, instructional materials, and evaluation of reading skills.

340. Teaching Mathematics: Preprimary-8. Cr. 2

Prereq: consent of adviser. Objectives, curriculum content, teaching strategies, evaluation of instruction materials.

350. Teaching Science: Preprimary-8. Cr. 2

Objectives and significant areas of study in the elementary school science curriculum. Introduction to teaching resources including science activities, field trips, print and non-print materials.

360. Teaching Social Studies: Preprimary-8. Cr. 2

Objectives, curriculum content and organization, teaching strategies, instructional materials, and evaluation of learning.

370. Teaching Creative Arts: Preprimary-8. Cr. 2

Objectives, teaching strategies, and the role of the creative arts in the elementary school curriculum.

503. (MED 553) Music Education for General Elementary Teachers. Cr. 3

No graduate credit for music majors. Foundations and basic methods in music for classroom teachers.

602. Seminar in Early Childhood. Cr. 4

Educational programs for young children in child care centers, kindergartens, and the primary grades. Improved human relationships, choices for children, play as a way of learning.

604. Role of Content Areas in Early Childhood Education. Cr. 2-8

Child growth and development as related to the content areas within the early childhood years (birth to eight years). Appropriate subject matter, field experience, reference materials, audio-visual resources in the lives of young children. Topics to be announced in *Schedule of Classes*.

606. Community Contacts: Working with Families in Urban Settings. Cr. 2

Programs and services within the community that assist families in improving educational services for the child.

607. Parent Intervention Programs in Home and School. Cr. 3

Program models, research, and relationship between school and parent intervention programs.

608. Preprimary Goals and Practice. Cr. 2

An examination of current programs and research in nursery school

and kindergarten education.

609. Parent's Role in Children's Development. Cr. 3

Developmental stages of parenting: infancy, early childhood, later childhood, adolescence and young adulthood; agencies and institutions that can influence the family.

610. Planning and Implementing Nursery School Curriculum. Cr. 2

Prereq: teaching experience. Short and long term planning, staff and parent relationships, curriculum areas.

612. Seminar in Adult Relationships in the Preschool. Cr. 2

A psychosocial approach to the adults in the young child's life: staff, parents and community.

629. Language Arts Instruction: Preprimary-8. Cr. 3

Prereq: admission to MAT degree program. Developing thinking, listening, speaking and writing skills in elementary and middle schools. Students plan, implement and evaluate learning experience with children under professional guidance.

630. Language Arts Curriculum: Preprimary-8. Cr. 3

Prereq: consent of adviser. Content of language arts programs. Objectives, procedures, materials, and organizational patterns.

631. Reading Instruction: Preprimary-8. Cr. 3

Prereq: admission to MAT degree program. Developing reading skills in elementary and middle schools. Students plan, implement and evaluate learning experience with children under professional guidance.

632. Reading Curriculum: Preprimary-8. Cr. 3

Prereq: consent of adviser. The reading process; procedure, materials and organizational patterns used when teaching reading.

634. Teaching Reading in Early Childhood Education. Cr. 3

Rationale for teaching reading and various reading skills to young children. Materials and methods for initial reading instruction.

636. Remedial Instruction in Reading and Related School Subjects. Cr. 3

Prereq: teaching experience. Diagnosis, treatment, and prevention of learning difficulties in reading and related subjects. Emphasis on overcoming learning difficulties within the regular classroom.

639. Mathematics Instruction: Preprimary-8. Cr. 3

Prereq: admission to MAT degree program. Developing mathematics skills in elementary and middle schools. Students plan, implement and evaluate learning experience with children under professional guidance.

640. Mathematics Curriculum: Preprimary-8. Cr. 3

Prereq: consent of adviser. Developing competence in school mathematics programs: objectives, procedures, materials, organizational patterns, evaluation.

650. Science Curriculum: Preprimary-8. Cr. 3

Role of learning in science in the curriculum. Objectives, plans of organization for learning, resources materials. Overview of balanced program. Experiences with appropriate experiments, field trips, reference materials, audio-visual resources.

660. Social Studies Curriculum: Preprimary-8. Cr. 3

Social studies program in elementary and middle schools emphasizing intellectual, social and affective development. Designing programs based on social priorities, modern socioeconomic, cultural, ethnic, political concepts.

662. Urban Resources for Children's Social Education. Cr. 3

Instructional resources in an urban culture. Field trips, conferences

with resource people, investigation of instructional materials. Implications for school curriculum of urban renewal, business and industry, the city as an educational and cultural center.

670. Fostering Creativity in the Elementary School Child. Cr. 3
Ways and means of developing children's creative abilities in the teaching-learning process. The implications of creativity in educational experiences of children.

672. Creative Arts Curriculum: Preprimary-8. Cr. 2-4
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.

702. Problems in Early Childhood Education. Cr. 3
Prereq: ELE 602. Current innovations, controversies, and research in educational programs for young children in child care centers, kindergarten, and primary grades.

720. Survey of Literature for Younger Children. (L S 651). Cr. 2
An intensive examination of books appropriate for preprimary and primary children. Current trends and issues by genre in the publishing of books for children.

722. Analysis and Function of Literature in Early Childhood. Cr. 2
Prereq. or coreq: ELE 720. Analysis of the literary and extraliterary factors that affect the young child's experiences with fiction and non-fiction. The role of books in young children's development.

724. Survey of Literature for Older Children. Cr. 2
Books appropriate for older children. Current trends and issues by genre.

726. Analysis and Function of Literature in Late Childhood. Cr. 2
Prereq. or coreq: ELE 724. Analysis of the literary and extraliterary factors that determine the effect of fiction and non-fiction. General function of books in late childhood, specific uses of fiction and non-fiction in developing and supporting the elementary school curriculum.

727. History of Children's Literature. (L S 654). Cr. 3
Prereq: consent of adviser. Historical-bibliographic survey of imaginative and informational literature for children. A study of the literature reflecting cultural values throughout history.

728. Storytelling. (L S 655). Cr. 3
Prereq: ELE 320 or 720 or 724 or consent of instructor. Selection of appropriate literature and materials for storytelling; guided practice in selection and presentation of literature for oral communication by reading aloud and storytelling.

732. Teaching Writing Skills. Cr. 3
Models of classroom writing activities based upon language theory. Course members use the models with children as activities designed to help children with grammar, spelling, handwriting and other expressive skills.

740. Seminar in Mathematics Curriculum: Preprimary-8. Cr. 3
Prereq: teaching experience and a methods course in 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, classroom procedures, examination of new programs, development and instructional materials.

780. Practicum in Curriculum Development. Cr. 1-5
Identification of specific problems in curriculum development; proposals for solutions.

785. Current Developments in Elementary Education. Cr. 1-9
Topics to be announced in *Schedule of Classes*.

798. Field Study and Seminar in Teaching. Cr. 1-3
Prereq: consent of adviser. Seminar in the study of teaching. Teaching experiences used for developing means of professional self-examination.

890. Issues in Elementary School Curriculum and Instruction. Cr. 3
Emerging trends in curriculum: content, instructional methods and materials. Review of the current literature with direct application to school problems.

892. Research in Elementary Education: Preprimary-8. Cr. 3
Prereq: admission to sixth year or doctoral program. Critical analysis of current research in curriculum development. Research design for curriculum development with assessment and evaluation proposals. Required of all doctoral students in Curriculum Development, Elementary Curriculum and Instruction.

English Education (EED)

601. Language and Reading Programs for Middle Schools. Cr. 3
Analysis and development of instructional methods and programs for improving reading and language competence of early adolescents in middle schools.

612. English Composition in Secondary Schools. Cr. 3
Prereq: directed or regular teaching or consent of instructor. Analysis of modes of writing; relationship of grammar and composition; integration with literature and reading; approaches to group and individualized instruction; relation of composition to perception, cognition, critical thinking, motivation, and self-awareness.

621. Linguistics and Learning. Cr. 3
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.

631. Literature for Adolescents. (L S 653). Cr. 3
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.

632. Analysis, Selection, and Use of Reading Materials for Adolescents. Cr. 3
Coreq: EED 631 or L S 653. Criteria for analyzing and selecting textbooks, trade books, newspapers, non-print materials suitable for use with adolescents. Exploration of issues such as racism, sexism, and student interests as they relate to adolescent reading materials.

633. Teaching Literature in Secondary Schools. Cr. 3
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.

705. Current Developments in the Teaching of English. Cr. 2-8
Prereq: teaching experience; consent of instructor. Application of modern theories in classroom settings. Advanced experimental teaching.

807. Advanced Seminar in English Education. Cr. 2-8
Prereq: consent of instructor. Primarily for students beyond the

master's degree. Theory underlying the teaching of English in secondary schools: curricular innovation, philosophies related to English teaching, language, literature, composition, and communication. Topics to be announced in *Schedule of Classes*.

808. Research Seminar in English Education. Cr. 3-4

Prereq: consent of adviser; EER 763 or equiv. Intensive survey of recent research in English education. Construction of research models relevant to problems in the teaching of English. Problem identification and development of research proposals.

Family Life Education (FLE)

541. Methods and Materials of Teaching Homemaking and Family Living. Cr. 4

Offered for S and U grades only. Basic principles, methods of instruction, and organization of material in homemaking education.

544. Family Life Education Workshop or Seminar. Cr. 1-10(Max. 10)

Experiences related to specific issues, problems, or concerns in family life education.

545. Family Life Education Seminar. Cr. 3

Prereq: TED 355, FLE 541. Open only to Family Life Education majors. Facets of consumer home economics, family living, and related occupational programs according to the Vocational Education Act of 1968, subsequent amendments, and the suggested Michigan Vocational Plan. Experiences with students in classrooms which typify trends in curriculum development.

547. Teaching Family Financial Management. Cr. 3

Prereq: S S 191, S S 192 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.

548. Child Development and Family Relationships. Cr. 3

Prereq: admission to senior college, family life education major. Parent-child relationships and growth through family living. Directed experience in College of Education Nursery School.

641. Survey of Home Economics Related Occupational Courses. Cr. 3

Prereq: teaching experience. Experiences specifically related to teaching occupational training courses; exploration of various curricula patterns; identifying content and procedures; criterion referenced materials.

643. Parent Education in Home, School, and Society. Cr. 3

The support of parents in the development of their parenting skills. Parent intervention programs; history of parent involvement in the schools and implications for curriculum development.

644. Family Life Education in Elementary School. Cr. 2

Prereq: teaching experience. Blending of aspects of family living with curricular content for grades K-6.

645. Secondary School Program in Family Living. Cr. 3

Overview of family life education in the schools; content, methods, problems relating to family living.

648. Homemaking Curricula. Cr. 3

Prereq: teaching experience. Economic, technical and social changes as a basis for curriculum development in family life education.

649. Practicum in Homemaking and Family Life Education. Cr. 1-8(Max. 8)

Prereq: consent of adviser. Opportunity provided to work with individuals in the various stages of the life cycle.

Industrial Education (IED)

474. Industrial Arts Activities for Occupational Therapists. Cr. 2-3

Material fee as indicated in *Schedule of Classes*. Development of knowledges and skills associated with industrial arts activities (drafting, woodworking, metals and plastics), including hand and machine tool operations and use of materials, fasteners, finishes and safety.

476. Materials and Processes - Wood, Sheet Metals and Multi-Media. (AED 476). Cr. 6

Material fee as indicated in *Schedule of Classes*. Development of products for industrial arts and arts and crafts programs utilizing wood, sheet metals, and multi-media materials appropriate for use in school settings.

670. Experiences for Technical Development. Cr. 1-8(Max. 8)

Prereq: consent of adviser. Extension of technical competence in the major teaching field. Attendance at industrial service schools, Wayne State University Applied Management and Technology Center, or other appropriate field experiences. Written reports required.

672. Industrial Arts for Teachers of Special Needs Students. Cr. 3

Experiences, information, and skills in planning industrial arts activities for inservice and preservice teachers of special needs students.

676. Modern Industrial Processes. Cr. 3

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.

677. Methods and Materials of Instruction II - Industrial Education. Cr. 4

Offered for S and U grades only. Practice and techniques for teaching units in industrial education with group and individualized methods; locating, selecting, and using educational materials. Students demonstrate selected course objectives in a field setting.

877. Seminar in Industrial Education. Cr. 3-6(Max. 6)

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.

Language Education (LED)

550. Introduction to Modern Languages in Secondary Schools: Methods I. Cr. 3

Prereq. or coreq: TED 355 and EDP 331 or TED 515 and EDP 531. Fundamental theory and practice of modern foreign language instruction. Basic classroom management techniques and preparation of teaching devices. Students micro-teach lessons which emphasize the listening and speaking language skills.

551. Teaching Modern Languages in Secondary Schools: Methods II. Cr. 3

Prereq: LED 550; coreq: TED 356. Foreign language teaching techniques and the preparation of teaching devices for student

teaching. Students micro-teach lessons which emphasize the reading and writing language skills.

652. Teaching English as a Second Language/Foreign Language: Methods I. Cr. 3

Prereq: consent of adviser. Methods and techniques; fundamental theory and practice; English as an international/intranational language. Students micro-teach lessons and prepare teaching materials which emphasize the listening and speaking language skills.

653. Teaching English as a Second Language/Foreign Language: Methods II. Cr. 2-3

Prereq: LED 652 or consent of adviser. Methods and techniques; English as an international/intranational language. Students micro-teach lessons and prepare teaching materials which emphasize the reading and writing language skills.

654. Workshop in Multi-Media Teaching of Languages. Cr. 2-4

Prereq: consent of adviser. The contributions of media to the teaching of all languages. Participants gain direct experience with the media discussed and demonstrated. Topics to be announced in *Schedule of Classes*.

655. Studies in Language Teaching and Learning. Cr. 1-8

Prereq: consent of adviser. Special workshops, short-term seminars, cooperative research teams, and topical language studies. Topics to be announced in *Schedule of Classes*.

658. Culture as the Basis for Language Teaching. Cr. 2-4

Prereq: consent of adviser. 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.

661. Internship in Teaching English as a Second/Foreign Language. Cr. 1-12

Prereq: admission to TESL/TEFL Internship. Offered for S and U grades only. Internship in a TESL/TEFL setting; assessment of cultural, educational, and linguistic needs of students with limited English-speaking ability; implementation of programs to meet those needs.

720. Advanced Workshop in English as an International/Intranational Language. Cr. 1-8(Max. 8)

Prereq: consent of adviser. Special aspects of English used as both an international and intranational language; general theory and specific practices; English-language problems and practices of countries which are geographically associated.

721. Special Problems in Foreign Language Teaching. Cr. 2-4

Prereq: consent of adviser. An examination of current problems which inhibit foreign language teaching. Students identify particular problems and work individually or in groups to seek solutions.

722. Linguistics in the Language Classroom. Cr. 2-4

Prereq: consent of adviser. Relationship of theoretical and applied linguistics to the goals and teaching techniques of language teachers.

723. Transnational/Transcultural Aspects of TESL/TEFL Teaching. Cr. 1-6

Prereq: consent of adviser. Problems and approaches of individual countries, and among countries, in teaching English as a second language or as a foreign language.

724. Advanced Seminar in Language Teaching. Cr. 2-4

Prereq: consent of adviser. Development, production, and evaluation of innovative techniques for first and second language teaching.

840. Advanced Theory and Practice in TESL/TEFL Teaching. Cr. 1-3

Prereq: consent of adviser. Selective review of current TESL/TEFL

theory and practice; focus on innovation and change. In-depth research and evaluation of current practices.

Mathematics Education (MAE)

505. (MAT 516) Mathematics for Elementary School Teachers I. Cr. 3

Credit only in the College of Education. Basic concepts of elementary school mathematics; set, systems of numeration, mathematical systems, real numbers and their applications, introduction to algebra.

506. (MAT 517) Mathematics for Elementary School Teachers II. Cr. 3

Credit only in the College of Education. Introduction to geometry, topics in algebra, topics in probability and statistics, computer applications in elementary school mathematics.

510. (MAT 518) Mathematics for Middle and Junior High School Teachers I. Cr. 3

Basic concepts of geometry; elementary concepts of topology; introduction to elementary functions and their applications.

511. (MAT 519) Mathematics for Middle and Junior High School Teachers II. Cr. 3

Elementary functions and their applications; analytical geometry; intuitive concepts of differential and integral calculus; computer applications in middle and junior high school mathematics.

515. Methods and Materials of Instruction - Secondary School Mathematics. Cr. 3

To be elected before student teaching. Mathematics in secondary school; major concepts of secondary school mathematics; methods and instructional materials; classroom administration; modern trends.

605. Teaching Mathematics in the Middle School and the Junior High School. Cr. 3

Creative use of resources and materials for improving the mathematics competencies of middle school and junior high school students; organizing the mathematics classroom for effective instruction; promising trends; related research.

610. Field and Laboratory Work in Mathematics Education. Cr. 3

Criteria for selection of teaching aids; construction and use of field and laboratory devices; classroom management; applications; calculators; promising practices; related research.

615. Creative Approaches in Mathematics Education. Cr. 2-6(Max. 12)

Prereq: teaching experience. Current issues and trends; areas of neglected content; curriculum proposals; related research. Topics to be announced in *Schedule of Classes*.

705. Urban Resources for Children and Youth in Mathematics Education. Cr. 2-3

Mathematics resources in an urban environment. Field trips, conferences with resource personnel, investigation of curricular materials using the urban setting as a mathematics educational center.

710. Worldwide Trends in Mathematics Education. Cr. 3

Prereq: 16 credits in graduate education. Current and projected practices in mathematics education in those countries of the world that have influenced programs in schools in United States and elsewhere.

805. Advanced Studies in Teaching Algebra. Cr. 3

Prereq: mathematics major or minor and 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.

810. Advanced Studies in Teaching Geometry. Cr. 3

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.

815. Teaching General Mathematics. Cr. 3

Major ideas of junior and senior high school general mathematics; classroom management; methods and materials of instruction; techniques for motivating students; promising practices; related research.

850. Seminar in Mathematics Education. Cr. 2-3(Max. 6)

Professional seminar on issues in mathematics education. Topics to be announced in *Schedule of Classes*.

860. Research Seminar in Mathematics Education I. Cr. 2-3

Overview of research in mathematics education, research and experimental design, critiques of research emphasizing strengths and weaknesses, identification of research interests.

870. Research Seminar in Mathematics Education II. Cr. 2-3

Continuation of MAE 860. Preparation and presentation of research proposals.

Reading Education (RDG)

443. Teaching Reading in Subject Matter Areas. Cr. 3

Approaches to the problems of reading related to the subject-matter teacher in the elementary and secondary schools. Methodology, philosophy, and psychology of reading.

600. Issues in the Teaching of Reading. Cr. 1-4 (Max. 4)

Consideration of current and emerging problems in the teaching of reading including rationale, purposes, teaching strategies, materials of instruction and evaluation of learning. Topics to be announced in *Schedule of Classes*.

630. Foundations of Teaching Reading in Secondary Schools. Cr. 3

Prereq: teaching experience. Psychological and physiological aspects of reading. Standardized and informal diagnostic and evaluation instruments. Interrelationships among specific reading skills.

650. Remedial Reading in Secondary Schools. Cr. 4

Prereq: RDG 630 or equiv. Classroom methods in teaching remedial reading, selection and evaluation of instruction materials, use and evaluation of mechanical aids; review of research, relation of teacher to clinician.

710. Reading in Early Childhood: Readiness and Initial Reading Instruction. Cr. 4

Factors affecting readiness and initial reading achievement. Materials, programs, and strategies for teaching reading readiness, beginning reading, oral reading and comprehension to young children.

711. Reading in Late Childhood: Developmental and Content Area Instruction. Cr. 4

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.

712. Reading in the Content Areas. Cr. 3

Practical approach to the problems of reading disability as they affect the subject matter teacher in social studies, science, mathematics and other areas.

750. Reading Diagnosis and Instructional Planning. Cr. 3

Prereq: four graduate credits in developmental reading. Material fee as indicated in *Schedule of Classes*. Use of informal inventories, criterion-referenced tests, and standardized group measures to observe and analyze oral reading, recall, comprehension, and critical reading. Strategies for providing diagnostic instruction in these areas. Techniques of estimating readability of materials and readiness of learners.

751. Advanced Reading Diagnosis and Instructional Planning. Cr. 4

Prereq: RDG 650 or 750 or consent of instructor and adviser. Material fee as indicated in *Schedule of Classes*. Use of individually administered diagnostic tests to observe and analyze auditory discrimination, visual discrimination, vocabulary, word attack, listening, oral reading recall, reading comprehension, word learning. Interpretation and reporting of test results. Planning and procedures for children with special instructional needs.

852. Practicum in Reading Diagnosis and Instruction. Cr. 4

Prereq: RDG 751. Offered for S and U grades only. Material fee as indicated in *Schedule of Classes*. Practice in testing and teaching children, teenagers, adults with reading difficulties, and in reporting test results, interpretations, recommendations, and observations about progress.

860. Psychology of Reading. Cr. 2

Prereq: any two courses selected from the following: RDG 630, 650, 660, 710, 711. Study of perception, learning, cognitive development, motivation, and social development as factors that affect student response to reading instruction.

861. Linguistics of Reading. Cr. 2

Prereq: two courses from RDG 630, 650, 660, 710, 711. The study of language acquisition, dialect language disabilities and bilingualism as factors that affect student response to reading instruction.

870. Organizing for Reading Instruction. Cr. 3

Prereq: two of the following courses: RDG 630, 650, 710, 711, 712. 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.

880. Seminar: Survey of Research in Reading I. Cr. 3

Prereq: admission to educational specialist or doctoral program. Survey of studies in language acquisition, readiness for beginning reading instruction, approaches to beginning reading instruction, perception and identification of words and phrases, comprehension, critical and creative reading, reading in the content areas, study skills, reading efficiency, independent reading, and theories and definitions of reading. Consideration of strategies commonly used in reading research.

881. Seminar: Survey of Research in Reading II. Cr. 3

Prereq: admission to educational specialist or doctoral program. Survey of studies in the organization and evaluation of reading materials, readability, the monitoring and reporting of achievement, the diagnosis and correction of reading difficulties, sociological factors affecting reading, teaching reading to the culturally different, adult basic literacy, preservice and in-service training, and contemporary issues in reading education. Exploration of strategies commonly used in reading research.

Science Education (SCE)

- 501. Biological Sciences for Elementary School Teachers. Cr. 3**
Significant biological principles, generalizations and understandings with relation to their use with children. Appropriate learning activities; experiments, field trips, text and reference materials, audio-visual resources, evaluation.
- 502. Physical Sciences for Elementary School Teachers. Cr. 3**
Significant principles, generalizations and understandings in the physical and earth sciences with relation to their use with children. Appropriate learning activities including experiments, field trips, reference materials, audio-visual resources.
- 504. Field Course Exploring the Natural Environment. Cr. 3**
Field and laboratory study of local plants, animals, and their physical environments and their interrelationships in ecological communities. The out-of-doors as a learning laboratory, techniques of teaching in the out-of-doors, and planning and evaluating school field experiences.
- 506. Methods and Materials of Instruction in Secondary School Science I. Cr. 3**
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 material, audio-visual resources, evaluation.
- 507. Methods and Materials of Instruction in Secondary School Science II. Cr. 3**
Prereq: SCE 506. 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.
- 509. Horticulture for Students of Occupational Therapy. Cr. 2**
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, blind, spastics, and pediatric and geriatric cases.
- 602. Advanced Studies in Teaching Science in the Elementary School. Cr. 3**
Recent innovations and trends in the teaching of elementary school science. Students examine and work with new materials and instructional strategies developed for use in elementary school science programs.
- 603. Advanced Studies in Teaching Science in the Junior High and Middle School. Cr. 3**
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.
- 604. Advanced Studies in Teaching Science in the High School. Cr. 3**
Emphasis on methods of teaching biology and the physical sciences in the high school. Recent curriculum studies, research, and current problems. Laboratory experiments, equipment, textual and reference material, audio-visual resources, and evaluation procedures.
- 607. Science Education for the Gifted, K-12. Cr. 3**
Prereq: SED 602 or written consent of instructor. The impact of science instruction on the development of gifted learners at the elementary and secondary school levels. Appropriate areas of scientific investigation with criteria for selection and evaluation of learning strategies, activities, and materials for the gifted.

- 608. Teaching Environmental Studies. Cr. 3-6**
For teachers of all academic disciplines and from all school levels, as well as persons of other occupational interests. Environmental problems, possible solutions, and their implications for classroom teaching and curriculum.
- 610. (AED 610) Art and Science in Education. Cr. 3-5**
Prereq: teaching experience or consent of instructor. Material fee as indicated in *Schedule of Classes*. A laboratory-lecture class in which content is a direct outgrowth of field trips; technological/industrial; museums; nature trails.
- 701. Curriculum Planning in Elementary and Secondary School Science. Cr. 1-6(Max. 12)**
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.
- 798. Field Study and Seminar in the Teaching of Science. Cr. 1-3 (Max. 10)**
Prereq: consent of adviser. Teaching experiences and supervision used as a basis for examination of the teaching of science.
- 805. Recent Research in Curriculum Development and Instruction in Science Education. Cr. 3**
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.

Social Studies Education (SSE)

- 534. (ANT 534) Arab-Speaking Communities in the Detroit Metropolitan Area. Cr. 3**
Study of various social aspects of Arabic communities in the Detroit region: family, religion, causes and effects of migration, cultural attitudes, social activities and problems.
- 671. Methods and Materials of Instruction in Secondary Social Studies. Cr. 3**
Foundations of social studies instruction and curriculum; methods of teaching in middle, junior, and senior high school.
- 673. New Perspectives in Social Education. Cr. 1-8(Max. 8)**
Specialized aspects of social education: gaming and simulation, global education, law-related education, community projects, interdisciplinary approaches. Topics to be announced in *Schedule of Classes*.
- 736. Social Studies Development. Cr. 1-8(Max. 8)**
Special problems in developing curriculum, related instructional processes, and materials: teacher planning, student-community involvement, individualization, informal curriculum; evaluation of student achievement and curricular effectiveness. Topics to be announced in *Schedule of Classes*.
- 775. Instructional Processes in Secondary Social Studies. Cr. 3**
Identification, analysis, and application of instructional processes in social studies; inquiry, climate, individualization, discussion strategies, instructional resources.
- 778. Organization of Learning Experiences in Social Studies. Cr. 3**
Source and nature of social studies objectives, promising learning

experiences, and curricular organization. Issues in the use of new curricular patterns.

874. Advanced Seminar in Social Studies Education, K-12. Cr. 3
Theories of social education; contrasting curricular designs, their assessment and evaluation; critique of research; study of curricular improvement problems.

Special Education (SED)

406. Developing Observation and Assessment Skills - Laboratory/Seminar, Cr. 4

Offered for S and U grades only. Investigation and application of appropriate evaluation techniques for use with severe/profound learners in a practice setting.

408. Special Education Services and Motivational Concepts. Cr. 2

Prereq: SED 406. Offered for S and U grades only. Field assignments, seminar discussions, and problem solving techniques involving: motivation, personal and personnel relationships, professional ethics, and services providing education and training to the handicapped.

503. Education of Exceptional Children. Cr. 3

General background and overview information concerning various classifications of exceptional children, their role in society, and their education.

504. Speech Improvement in the Classroom. Cr. 2

Identification of the speech characteristics and needs of teachers and pupils; deviations from normal speech; integration of speech improvement in classroom activities.

507. (SPD 514) Introduction to Speech Science. Cr. 3

Prereq: SPD 508, SPD 509. An overview of the basic processes of speech production; presentation of the principles of psychology acoustics, phonetics, linguistics, semantics, and neurology involved in normal speech production.

511. Mental Retardation and the Cognitive Process. Cr. 3

Characteristics, classifications, etiologies, evaluation and learning strategies for the improvement of the cognitive processes in mentally impaired learners.

513. Curriculum Development: MR/POHI. Cr. 3

Specialized instructional approaches, evaluation, techniques, curriculum and instructional aids for the mildly- to profoundly-impaired learner.

514. Behavior Management: MR/POHI. Cr. 3

Specialized instructional and training approaches for management of behavior problems of mildly to profoundly mentally impaired and multiply impaired learners.

525. Techniques in Educating Children with Physical Impairments. Cr. 2

Emphasis on educational, recreational, and vocational implications of handicapping conditions including cerebral palsy, spina bifida, chronically ill, sickle cell, spinal cord injuries, terminal burns, convulsive disorders, CVA.

526. Home and Hospital Education of Children with Physical Impairments. Cr. 3

Implementation of educational programs for physically impaired in homebound and hospital instruction and other special education settings. Emphasis on educational planning for pupils with congenital

and acquired physically handicapping conditions.

528. Education of the Multiply Impaired. Cr. 3

Prereq: SED 503. Introduction to etiology and problems of multiply impaired; specific assessment of pupil educational needs; program planning and evaluation of educational placements.

530. (SPD 530) Introduction to Speech Pathology. Cr. 3-4

Development of speech correction in education; classification, basic principles, methods of diagnosing and treating speech deficits; clinical observations required for majors only.

531. (SPD 531) Clinical Methods in Speech Pathology. Cr. 3

Prereq: SED 530 or consent of instructor. Procedures and materials for clinical diagnosis of articulatory, language, rhythm, and voice deficits of organic and non-organic causation.

532. (SPD 508) Phonetics. Cr. 3

Multisensory study of sounds of the English language, emphasizing acoustic, physiologic, kinesiological approaches.

533. (SPD 509) Anatomy and Physiology of the Speech Mechanism. Cr. 3

Prereq: consent of instructor. General science of normal speech; anatomy, physiology and mechanics of respiration, phonation, resonance, articulation.

534. (SPD 536) Clinical Practice in Speech Pathology. Cr. 2 (Max. 8)

Prereq: SPD 531, SPD 660 and written consent of instructor. Supervised experience in application of methods of diagnosis and treatment of clinical cases.

536. (SPD 532) Normal Acquisition and Usage. Cr. 3

Language development in children and the associated areas of emotional and motor development; language stimulation techniques and programs.

540. (SPM 540) Introduction to Audiology. Cr. 3

Prereq: consent of instructor. Introduction to physics of sound, anatomy of the hearing mechanism, audiometry, hearing aids, habilitation and rehabilitation of the hearing handicapped.

541. (SPM 544) Practicum in Audiology. (AUD 544). Cr. 1

Prereq: SPM 450 and written consent of instructor. No credit for graduate students in audiology. Supervised training and practice for clinical certification.

550. Introduction to Education of the Deaf. Cr. 2

Prereq: SED 503. History, programs and principles in the education and guidance of the hard-of-hearing and the deaf. Fundamentals of teaching speech, languages and academic subjects; development of speech and language. Observations of community services for the deaf required.

551. (SPM 542) Speech Reading and Auditory Training. (AUD 542). Cr. 4

Prereq: SPM 540 or consent of instructor. Principles and methods of teaching speech reading and utilizing auditory training for the hard-of-hearing and deaf.

560. Education of Visually Impaired Children. Cr. 3

Prereq: SED 503 or consent of instructor. History, programs and principles in education and guidance of visually impaired children. Observations required.

561. Pathology of Organs of Vision. Cr. 3

Prereq: SED 560 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.

562. Teaching Visually Impaired Children. Cr. 3

Prereq: SED 503 and 560. Program planning including pupil evaluation, teaching methods and material; curriculum adaptation and pupil guidance. Off-campus observation required.

563. Braille Methods. Cr. 2

Prereq: SED 560 and consent of instructor. Credit only upon satisfactory completion of SED 564. Acquisition of competency in reading and writing braille and Nemeth Code.

564. Advanced Braille and Technical Aids for Blind. Cr. 2

Prereq: SED 563. Continuation of the braille code and instruction in technical aids including Optacon. Course to be taken the semester following SED 563.

570. Learning Disabilities of Exceptional Children. Cr. 2

Prereq. or coreq: SED 503 or consent of instructor. Characteristics, classifications, etiologies; evaluation of seriously retarded; social organization and programs for care, treatment, education, and rehabilitation.

600. Problems in Special Education. Cr. 1-6(Max. 8)

Prereq: teaching experience and consent of instructor. For teachers, supervisors, and administrators. Seminars and workshops dealing with problems in educating handicapped children in pre-school, elementary, and secondary programs. Topics to be announced in *Schedule of Classes*.

601. Seminar in Multi-Handicapped. Cr. 2-3

Coreq: student teaching in special education or consent of instructor. For teachers, supervisors, and administrators. Investigation of theories, programs, and practices in teaching the multi-handicapped. Emphasis on the problems associated with the education, training, and programming of multi-handicapped students.

602. Educating Intellectually Superior, Creative, and Talented Children. Cr. 3

Prereq: six credits in psychology or special education. Individual differences, characteristics, identification, development, curriculum, adaptations, teaching procedures.

632. (SPD 632) Organization and Methods in Speech Pathology. Cr. 3

Prereq: consent of instructor. Class organization, management, materials, teaching aids, techniques.

633. (SPD 608) Advanced Phonetics. Cr. 3

Prereq: SED 532. Correlation of physiology to the production of speech and the acoustic characteristics of the sounds of English.

634. (SPD 609) Electroacoustics of Speech. Cr. 3

Prereq: consent of instructor. Lecture-laboratory consideration of electroacoustics as applied to speech and audition.

636. (SPD 636) Advanced Clinical Practice in Speech Pathology. Cr. 2 (Max. 8)

Prereq: SED 536, 660, and written consent of instructor. Supervised experience in application of diagnosis and treatment of clinical cases.

638. (SPD 638) Diagnostic Tests in Communication Disorders. Cr. 3

Prereq: Junior standing; SPD 508, SPD 509, SPD 514, SPD 530, SPD 532. Diagnostic tests and instruments used in the appraisal of speech-language disorders. Test protocol and administration procedure.

639. (SPD 634) Speech Rehabilitation of the Laryngectomee. Cr. 3

Prereq: consent of instructor. Basic principles and practices for developing and improving the speech of the laryngectomee.

660. (SPD 660) Introduction to Articulation Disorders. Cr. 3

Prereq: SED 530 or consent of instructor. An introduction to basic concepts related to acquisition and manifestations of articulation disorders in children and adults.

661. (SPD 661) Introduction to Stuttering. Cr. 3

Prereq: SED 530 or consent of instructor. An introduction to basic concepts related to acquisition and manifestations of stuttering disorders in children and adults.

662. (SPD 662) Introduction to Voice Disorders and Cleft Palate. Cr. 3

Prereq: SED 530 or consent of instructor. An introduction to basic concepts related to acquisition and manifestations of voice disorders in children and adults and to resonance disorders as a result of oral clefting.

663. (SPD 663) Introduction to Neurological Speech and Language Disorders. Cr. 3

Prereq: SED 530 and 533. Etiology, symptomology, and clinical treatment of neurologically-based speech and language disorders in children and adults.

664. (SPD 664) Language Pathology: Etiology and Diagnosis. Cr. 3

Prereq: SED 530 and 532. Descriptions, etiology, methods of diagnosis of language disorders in children.

665. Orientation and Mobility: Visually Impaired Children. Cr. 2

Prereq: SED 503, 560, 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.

701. Evaluation of Educational Programs for the Severely/Profoundly Impaired. Cr. 3

An in-depth experience evaluating an appropriate learning system for use with a special group of severely/profoundly impaired citizens. The learning system will be based on a search for objectives, analyses of processes, and an identification of possible outcomes.

714. Curriculum Development for the Developmentally Disabled. Cr. 1-12 (Max. 12)

Prereq: SED 511, 513 or consent of instructor. Classroom and field experiences in selecting, implementing, evaluating, and modifying appropriate learning curricula for the developmentally disabled (mentally impaired, multi-handicapped), including cognitive, affective, language, self-care, and prevocational and actual vocational skills. Topics to be announced in *Schedule of Classes*.

715. Educational Diagnosis and Interventions: Moderately/Severely Impaired. Cr. 3

Prereq: SED 511 or consent of instructor. Specific diagnostic educational approaches to motor, affective, and cognitive disabilities of the moderately/severely impaired. Practical assessments, programs and theoretical systems will be investigated at the pre-school, elementary, secondary and post-school levels.

730. (SPD 736) Internship in Speech Pathology. Cr. 2 (Max. 8)

Prereq: written consent of instructor. Advanced professional experience in clinical speech pathology.

731. (SPD 738) Diagnosis of Speech and Language Problems. Cr. 3 (Max. 9)

Prereq: consent of instructor. Clinical practice in diagnosis; handling referral to medical specialists; planning, training, treatment procedures.

732. (SPD 702) Advanced Principles and Methods in Speech Science. Cr. 3

Prereq: SED 507 or consent of instructor. Integration of the

information from various disciplines involved in the production and measurement of speech and language.

734. (SPD 734) Dynamic Analogies. Cr. 3

Prereq: written consent of instructor. Analogies between electrical, mechanical rectilinear, mechanical rotational and acoustical systems.

735. (SPD 735) Advanced Anatomy and Physiology of the Speech Mechanism. Cr. 3

Prereq: SPD 509 or SED 533 and written consent of instructor. Material fee as indicated in *Schedule of Classes*. Consideration of current literature and dissection.

736. (SPD 730) Behavior Modification in Speech Pathology. Cr. 3

Presentation of classical, instrumental, implosive and modeling treatment paradigms applied to the various speech and language disorders in individual and group therapy.

737. (SPD 737) Special Research Projects in Communication Disorders and Sciences. Cr. 3

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.

760. (SPD 760) Advanced Clinical Methods: Articulation. Cr. 3

Prereq: SED 660. The etiology, diagnosis and advanced treatment regimens of articulation disorders in children and adults.

761. (SPD 761) Advanced Clinical Methods: Stuttering. Cr. 3

Prereq: SED 661, SPD 736, or consent of instructor. The etiology, diagnosis and treatment of stuttering disorders in children and adults.

762. (SPD 762) Advanced Clinical Methods: Voice Disorders. Cr. 3

Prereq: SED 662 or consent of instructor. The etiology, diagnosis and treatment of voice disorders in children and adults.

763. (SPD 763) Advanced Clinical Methods: Aphasia. Cr. 3

Prereq: SED 663. Assessment and remediation principles designed for the adult aphasic.

764. (SPD 764) Advanced Clinical Methods: Language Disorders. Cr. 3

Prereq: SED 664. Linguistic, cognitive, pragmatic, and perceptual considerations in assessment and remediation of childhood language disorders.

765. (SPD 765) Advanced Clinical Methods: Cleft Palate Speech. Cr. 3

Prereq: SED 662 or consent of instructor. The etiology, diagnosis and treatment of cleft palate disorders in children and adults.

766. (SPD 766) Advanced Clinical Methods: Neuromuscular Disorders. Cr. 3

Prereq: SED 663. The etiology, diagnosis and treatment of neuromuscular disorders in children and adults.

767. Recent Trends in Educating Visually Handicapped Children. Cr. 2

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.

768. (SPD 767) Counseling in Communication Disorders. Cr. 3

Prereq: graduate standing and consent of instructor. Principles of counseling appropriate to the student's work with families of/and the communicatively disordered. Video tapes, guest counselors, and supervised counseling experience.

776. Teaching Learning Disabled Children. Cr. 4

Prereq: for learning disabilities and emotional impairment majors or consent of instructor. Methods, materials, and procedures for education of children with learning disabilities in elementary school programs.

777. Teaching Learning Disabled Adolescents. Cr. 4

Prereq: SED 776 for learning disabilities and emotional impairment majors; others by consent of instructor. Methods, materials, and procedures for education of adolescents with learning disabilities in secondary school programs.

779. Language Bases of Learning Disabilities. (SPD 633). Cr. 3

Prereq: open only to learning disabilities/emotional impairment majors; others by consent of instructor. Normal language acquisition and development and language pathology, including neurological process involved in speech reception and production, and assessment of language disorders as they related to learning disabilities.

780. Practicum with the Emotionally Impaired or Socially Maladjusted. Cr. 1-10

Prereq: consent of instructor. Special laboratory experience of educational work in an interdisciplinary treatment setting with emotionally impaired children or adolescents.

782. Psycho-Educational Information for Teachers of Emotionally Impaired. Cr. 3 or 4

Prereq: SED 570 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.

783. Psycho-Educational Management and Curricula for Emotionally Impaired. Cr. 3 or 4

Prereq: SED 570 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.

784. Psycho-Educational Intervention and Acting Out Phenomenon. Cr. 2 or 3

Prereq: SED 782 or consent of instructor. Orientations of teachers of the emotionally impaired and ancillary personnel to techniques of intervention with acting out children and youth.

785. Seminar in Emotionally Impaired. Cr. 2 or 3

Prereq: SED 783 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.

805. The Resource Room Teacher. Cr. 2

Identification, placement, and programming of special students in resource rooms with emphasis on the maintenance of the child in the least restrictive environment.

807. Teacher-Consultant of Exceptional Children. Cr. 3

Prereq: SED 503, 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.

836. (SPD 809) Research in Speech Science. Cr. 3

Prereq: consent of instructor.

837. (SPD 839) Seminar in Speech and Language Pathology. Cr. 3(Max. 18)

Prereq: written consent of instructor. I - Stuttering; II - aphasia; III - cleft palate; IV - neuromuscular disorders; V - language pathology; VI - special topics. Three credits each topic. Topics to be announced in *Schedule of Classes*.

838. (SPD 838) Seminar in Speech Science. Cr. 3 (Max. 12)

Prereq: written consent of instructor. I: Vocal mechanism; II: embryology; III: neuromuscular bases; IV: feedback mechanisms. Three credits in each topic. Topics to be announced in *Schedule of Classes*.

870. Practicum-Internship in Educating Exceptional Children. Cr. 1-8(Max. 8)

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.

907. Advanced Seminar. Cr. 2

Prereq: specialist or doctoral standing in special education and consent of adviser. Major problems and trends.

Speech Education (S E)

537. (SPC 504) Communication in the Black Community. Cr. 3

Sociolinguistic and rhetorical analysis of speech and language behaviors among Afro-Americans, linguistic history and development of black English, related issues concerning the education of black children.

606. (SPE 606) Teaching Communication at the Secondary Level. Cr. 3

Prereq: fifteen credits in speech or consent of instructor. Philosophy, pedagogical issues, and methods for teaching speech in secondary schools.

Vocational Education (V E)

691. Planning for Vocational and Career Education. Cr. 3

Principles and processes for implementation of techniques of career education in a vocational or applied arts curriculum as viewed on a programmatic basis.

692. Cooperative Education - Field Study. Cr. 1-10(Max. 12)

Prereq: vocational major and curriculum area approval. Field experience to correlate with the teaching of vocational subjects.

693. Special Problems in Vocational Education. Cr. 1-4(Max. 6, M.Ed.; max. 8, Ed. Spec.; max. 12, Ed.D. and Ph.D.)

Prereq: vocational teaching experience, consent of adviser. Special workshops and short term seminars in vocational subjects.

695. Intern Teaching in Community College Vocational Programs. Cr. 2-8

Prereq: methods course; admission to directed teaching; coreq: TED 456. Offered for S and U grades only. Intern teaching in a community college in a selected vocational subject. Credit not applicable for Michigan provisional certification.

697. The Current Economic Scene and Career Education. Cr. 3(Max. 6)

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.

699. Coordination of Cooperative Occupational Education. Cr. 3
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.

782. Planning and Organizing Instruction. Cr. 3

Planning and organizing instruction for a competency based program: justification, approaches for content, performance objectives, instructional resources, planning and evaluating units.

783. Objective-Referenced Evaluation in Vocational Education. Cr. 3

Prereq: TED 781 or consent of instructor. Open only to vocational teachers and administrators. Principles and procedures of objective-referenced evaluation and assessment as incorporated into the competency based model of instruction.

895. Administrative and Supervisory Functions in Vocational Education. Cr. 3

Activities related to administration and supervision of vocational education on local level. Federal, state, and local relationships. Legislation affecting local and other programs.

897. Vocational Education in Community Colleges. Cr. 3

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.

898. Current Issues and Trends. Cr. 3(Max. 6, M.Ed. and M.A.T.; max. 9, other advanced degree programs)

Place, function, and evolving concepts of vocational education. Economic, sociological, psychological, and technical factors.



THEORETICAL AND BEHAVIORAL FOUNDATIONS

Division Head: John J. Pietrofesa, Professor

Office: 319 Education Building

Professors

Edward G. Adamek, Jr., Walter J. Ambinder, George D. Barahal, Arthur Brown, J. Frank Campbell, Louis J. Cantoni, Nathaniel L. Champlin, Juanita Collier, John J. DeWitt, Guy T. Doyal, Claire Irwin, August F. Kerber, Donald Marcotte, Barry S. Markman, Leon T. Ofchus, John J. Pietrofesa, John Vriend, Robert E. Wurtz

Associate Professors

Bianca Bernstein, Arnold Coven, John A. George, Stephen B. Hillman, Alan M. Hoffman, Elizabeth Hood, Sandra L. Lyness, JoAnne Minor, Betty Reisman, Paul W. Sullivan, Maurice O. White

Assistant Professors

Henderson Hendrix, Joseph Posch, Gordon Smith

Purposes

The Division of Theoretical and Behavioral Foundations includes degree programs in educational evaluation and research, counselor education, educational psychology and school and community psychology, 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 multidisciplinary experiences for and with students.

Programs leading to the Bachelor of Science in Education, 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 undergraduate degrees for information regarding the Bachelor of Science in Education degree requirements (page 63). Consult appropriate divisional adviser in counselor education for detailed information.

See preceding section on graduate degrees for information regarding areas of specialization for each degree and basic degree requirements (page 64). Consult appropriate divisional adviser for detailed information about areas of specialization.

Educational Evaluation and Research

Evaluation and Research offers concentrated programs for building careers and leadership positions in educational evaluation and statistics; computer technology; and research methodology.

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.

Counseling

The counseling unit, through its undergraduate and graduate programs, offers students the opportunity to gain information, knowledge, and skills in the fields of counseling. Sub-specializations include school counseling as well as college student personnel work. Other programs are designed for working with adults and in agencies.

The *Bachelor of Science* degree program in Guidance and Counseling Services is for those students seeking employment in an educational capacity in a variety of human relations fields. This degree prepares students to work in educational and agency settings which are concerned with service, training, career development, educational program development and in-service programs. This degree does not lead to recommendation for a Michigan teaching certificate nor an endorsement as a school counselor.

Master of Education degree programs are for those enrollees who expect to become school counselors, school guidance workers, career guidance specialists, and for those who wish to broaden or improve their teaching competency by including guidance skills.

In accordance with the Michigan Department of Education regulations, this program area has been approved to offer graduate programs leading to recommendation for Michigan school counselor endorsement at the elementary (K-8), secondary (7-12), and K-12 levels. A currently valid Michigan teaching certificate is necessary for such a recommendation. Please obtain the program area statement and counselor endorsement information sheet for course and degree requirements.

Master of Arts degree programs are mainly offered for those who expect to become college student personnel workers or for those who are engaged in counseling in non-school settings such as community agencies, employment agencies, churches or religious organizations and industry.

Two program variations of the *Master of Arts* degree are offered only at off-campus locations. The first is a thirty-six credit sequence in human sexuality and sexual counseling. The other is a two-year (six semesters including summers) program in marriage and family counseling. Specific information about these programs can be obtained from counseling unit secretaries or from the faculty member coordinating the particular program.

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 applying 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 counseling are provided as preparation for positions of leadership, research, and teaching.

Please consult with an appropriate adviser regarding available sub-specializations in counseling and for program information and specific requirements.

Educational Psychology

Educational Application of Behavioral Psychology

A specialization in the application of behavioral psychology is available to students majoring in educational psychology at the master's, or doctoral level. 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 School and the prerequisites of the College of Education, each applicant must complete an application form from the program area 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 dehumanizing 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 chairperson of the program area doctoral committee for specific program information and requirements. All applicants for admission must have completed a minimum of thirty graduate semester credits in psychology or educational psychology or hold a master's degree in either educational psychology or psychology. All admission requirements must be completed before the first day of February.

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. Students applying at the doctoral level must file program area applications concurrently for both programs.

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 depend 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 School, 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 February.

Educational Sociology

The programs in educational sociology are concerned with 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. Emphasis is placed upon shifts in power in educational decision making and upon the effects of social change on education, especially the impact of minority group influence.

History and Philosophy of Education

Courses and programs in history and philosophy of education are designed to strengthen the ability of educators to employ historical and philosophic approaches in the analysis of educational problems and issues. A master's degree program is offered for those who wish to go on to a doctoral degree in philosophy of education as well as for those who wish to retain their identity with another field of specialization but seek to add historical and philosophical depth to their work.

The doctoral degree in history and philosophy of education is offered for students who intend to teach at the college or university level or for those with positions in schools, colleges, and other institutions which require an understanding of the philosophic nature of educational and other social problems.

Doctoral candidates may select from a wide range of cognate courses in the humanities, literature, music, art, psychology, philosophy, and the social sciences. An option in educational policy studies is available for students majoring in history and philosophy of education.

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, socially disadvantaged, or chemically dependent. In preparing the student, emphasis is placed on developing his/her ability to provide clients with (1) diagnostic and remedial services, (2) vocational counseling, (3) training, and (4) placement in suitable employment.

COURSES OF INSTRUCTION¹

Theoretical And Behavioral Foundations (TBF)

610. Special Problems in Educational Foundations. Cr. 1-6(Max. 12)

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*.

700. Introductory Master's Seminar. Cr. 3

Prereq: admission to master's degree program in Theoretical and Behavioral Foundations Division.

795. Directed Study. Cr. 1-6(Max. 6)

Prereq: written consent of adviser and graduate officer on completed Petition and Authorization for Directed Study form, prior to registration.

797. Research. Cr. 1-6(Max. 6)

Prereq: written consent of adviser.

798. Field Studies. Cr. 1-8(Max. 8)

Prereq: consent of adviser. Supervised professional study conducted in a field setting.

799. Terminal Master's Seminar and Essay or Project. Cr. 3

Prereq: consent of adviser.

899. Master's Thesis Research and Seminar. Cr. 3-9(9 req.)

Prereq: consent of adviser.

999. Doctoral Dissertation Research and Direction. Cr. 1-16 (Ed.D., 20 req.; Ph.D., 30 req.)

Prereq: consent of doctoral adviser. Offered for S and U grades only.

Counselor Education (CED)

110. Introduction to Guidance and Counseling Services. Cr. 3

An overview of counseling and guidance theories, methodologies, and practices in various service settings.

120. Social Issues and Counseling Services. Cr. 2

Current social issues of society examined in light of their implications for the delivery of counseling services.

150. Basic Helping Skills Development. Cr. 3

Prereq: CED 110 and 120. Attending, observing, listening and responding skills in counseling. Role-working as the vehicle by which students may practice the helping skills.

230. Helping Group Interaction. Cr. 2

Prereq: CED 110, 120. Offered for S and U grades only. Introductory course in small group participation. Students are exposed to the dynamics of small groups.

260. Observation and Field Studies in Guidance and Counseling. Cr. 2-10

Prereq: 12 credits in guidance and counseling. Observation and field studies within a variety of counseling settings designed to provide greater understanding of classroom learning.

270. 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.

290. Introduction to Guidance and Counseling: Philosophical Perspectives. Cr. 2

Various views of human nature studied and evaluated in light of their implications for the helping professions.

330. Group Procedures in Counseling Services. Cr. 3

Prereq: junior standing and CED 110, 120, 230. An overview of group techniques and strategies to help facilitate self-understanding and enhance students' capability to work in counseling services.

350. Advanced Helping Skill Development. Cr. 3

Prereq: junior standing and CED 110, 120, 150. Introduction and development of advanced responding, personalizing, and initiating skills in counseling. Decision-making skills which foster behavior change applied by students in one-to-one situations; variety of intervention techniques used.

360. Community Resources and Agencies. Cr. 3

Prereq: junior standing and CED 110, 120. First-hand knowledge of various community agencies and resources which deal with counseling services.

370. Introduction to Career Development. Cr. 3

Prereq: junior standing and CED 110, 120. An introduction to and overview of career development theories.

380. Ethical Issues of Counseling Services. Cr. 3

Prereq: junior standing and CED 110. Introduction to and overview of the importance and necessity of ethical standards and issues within the counseling services.

420. Special Concerns in Counseling Services. Cr. 3-9

Variety of unique and special concerns likely to be met by the counseling services professional. Methods of handling special problems.

460. Field Work in Counseling Services. Cr. 3-6

Prereq: senior standing; completion of 16 credits. A field placement experience in counseling services.

470. Advanced Career Development. Cr. 3

Prereq: senior standing; CED 370. A study of advanced career development methodology.

480. Special Project in Counseling Services. Cr. 3 (Max. 9)

Prereq: senior standing; completion of 16 credits. Senior project in counseling services.

501. Nature of Substance Abuse. Cr. 3

An examination of the causes, manifestations, and effects of substance abuse.

503. Role of the Counselor in Substance Abuse. Cr. 3

Prereq: CED 360 or graduate standing. An overview of guidance methods, local substance abuse programs, referral sources, court and legal procedures.

505. Counseling Strategies with Substance Abusers. Cr. 3

Prereq: CED 350, 503 or graduate standing. Use of specific counseling strategies and treatment models with substance abusers.

509. Family Education and Counseling: Substance Abusers. Cr. 3

Prereq: CED 350 or 503 or graduate standing. Analysis of family

¹ See page 633 for interpretation of numbering system, signs and abbreviations

interaction and communication patterns between substance abusers and their families, and counseling of small group practice.

600. Introduction to Group Work. Cr. 2

Prereq: CED 607 or 670 or equiv. Coreq: 601. Open to counseling majors only. Methods and techniques of group work in counseling settings. Students will study various facets of group dynamics and their applications in various employment settings.

601. Group Counseling Participation. Cr. 2

Prereq: CED 607 or 670 or equiv.; coreq: 600. Offered for S and U grades only. Open only to counseling majors. Group counseling session to experience counseling from the client's perspective, and to become familiar with procedures and methods of group counseling in a laboratory setting.

603. Placement Procedures and Principles. Cr. 2

Principles and procedures for carrying out the job placement and related functions in educational institutions and agencies; the relationship of placement to vocational counseling.

604. Student Personnel Work in Higher Education. Cr. 4

An overview of guidance services appropriate for higher education. Variety of student types and the interaction of students and their environment.

607. Introduction to Guidance and Counseling. Cr. 2

Prereq: 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.

662. Workshop in Career Education. Cr. 1-8

For teachers, counselors, principals and agency personnel who are responsible for career education. Emphasis on developing, evaluating and refining career education strategies (lessons, modules, or units).

670. The Role of the Teacher in Guidance. Cr. 2

Introduction to guidance principles, techniques and roles, with stress on classroom application. Primarily for school personnel other than counselors.

672. Workshop in Guidance and Counseling. Cr. 2-4(Max. 8)

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.

673. Counseling of Special Populations. Cr. 2-6

Prereq: prior consent of instructor or adviser. A study of the uniqueness of several special populations such as adults, women and minorities to provide an awareness of their special influences on the counseling process.

675. Introduction to Human Sexual Behavior. Cr. 2

Prereq: consent of adviser. Behavioral and attitude changes in sex behavior as it affects the role of the counselor and sex educator.

676. Concepts and Methods of Sex Counseling. Cr. 2

A survey of historical methods of sex counseling and an examination of current sex counseling methods. Field visits to sex counseling centers.

677. Behaviorism and Sex Counseling. Cr. 2-3

Prereq: CED 675 and 676 or consent of instructor. A consideration of behavioral approaches to sexual development. Principles of learning underlying diagnosis and treatment of sexual problems provide the foundation for understanding techniques such as desensitization, imagery, and conditioning.

678. Sex Education in Social Institutions. Cr. 2

A study of sex education programs in family, schools, and church to

provide students with an awareness of the importance of appropriate sex education in social and educational institutions.

702. Internship in Guidance and Counseling and Student Personnel Work. Cr. 3-8(Max. 8)

Prereq: consent of adviser and instructor during semester 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 counseling programs.

704. Case Problems in Guidance. Cr. 2

Prereq: CED 607 or 670 and graduate course in psychology and educational psychology; prereq. or coreq: EDP 749 or equiv. Identification and analysis of problems of individuals. Actual cases analyzed; proposals designed for solution.

705. The Counseling Process. Cr. 3

Prereq: CED 704, EDP 749 or equiv.; prereq. or coreq: CED 708. Theories underlying various approaches to counseling. Skills practice in interviewing and analyzing interviews.

706. Counseling and Consulting in Education. Cr. 2

Prereq: CED 607 or 670. Open only to guidance majors. Theories and strategies for counseling and consulting in a school setting.

707. Guidance in the Elementary School. Cr. 2

Prereq: CED 607 or 670, or equiv. and consent of instructor. Principles of guidance in the elementary school; focus on the relationship of guidance to developmental needs of children.

708. Educational and Occupational Information. Cr. 2

Occupational choice, its nature, determinants, and implications for education. Sources and uses of educational and occupational information. Relation of school experiences and occupations.

710. Internship in Marriage and Family Counseling. Cr. 3-15(Max. 15)

Prereq: CED 721 and consent of instructor. Offered for S and U grades only. Students counsel in local agencies under the supervision of an experienced therapist three working days each week. A minimum of 15 credits or 1256 clock hours required for the Master of Arts degree.

711. Theories of Counseling. Cr. 2

Analysis of several theories of counseling: psychoanalytic, behavioral, gestalt, rational-emotive, client-centered.

720. Introduction to Marriage and Family Counseling. Cr. 3

Prereq: admission to marriage and family counseling program. An introduction to marriage and family counseling with emphasis on initial counseling skills, nature and scope of the field and relevant research.

721. Advanced Marriage and Family Counseling. Cr. 3

Prereq: admission to marriage and family counseling program. An introduction to several modalities and development of advanced skills in marriage and family counseling including both individual and group variations.

800. Seminar in Group Counseling. Cr. 3

Prereq: CED 600 or equiv. and consent of instructor. Each member meets with small groups of clients of his/her 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.

801. Referral Functions of the Counselor. Cr. 2

Prereq: CED 607 or equiv. Examination of referral roles, relationships, and resources within and without institutions and agencies; cooperative possibilities between and within various helping

agencies.

802. Counseling Practicum. Cr. 4-12(Max. 12)

Prereq: admission to graduate program in counselor education; CED 705, 708, EDP 749 or equiv. and written consent of CED program area. Supervised practice counseling in the counseling laboratory. All skills and understandings developed in guidance preparations used. Counseling competence evaluated.

803. School Guidance Programs - Organization, Administration, and Evaluation. Cr. 3

Prereq: CED 607, 670 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.

804. Guidance and Counseling Seminar in Case Problems. Cr. 3

Prereq: CED 704 and consent of instructor. Theories of personality and learning applied to case diagnosis and projected remediation.

805. Advanced Student Personnel Work. Cr. 2

Prereq: CED 604, 702, HED 854 or HED 850, 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.

807. Advanced Seminar in Guidance and Counseling and Student Personnel Work. Cr. 3

Prereq: admission to education specialist or doctoral program, or consent of instructor; one 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.

808. Advanced Educational and Occupational Information. Cr. 2-4(Max. 8)

Prereq: CED 708 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 related topics.

809. Interdisciplinary Seminar in Pupil Personnel Work. Cr. 2-12

Prereq: master's degree in counselor education; admission to advanced or special program in counselor education and 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.

900. Guidance and Counseling Seminar-Laboratory in Group Leadership. Cr. 3-9(Max. 9)

Prereq: CED 798, 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.

902. Internship in Counseling/Counselor Education. Cr. 2-8(Max. 24)

Prereq: admission to a doctoral program in counselor education; consent of adviser. Purposes, objectives, materials, techniques and practices in counselor education programs. Supervised experience in advanced counseling and in various phases of the counselor education program.

Educational Evaluation And Research (EER)

561. Foundations of Evaluation and Research. Cr. 2

Exploration of scientific inquiry and essential concepts in educational research, evaluation, measurement, statistics. Procedures, models, resources for problem solving.

562. Statistical Readings in School and Community Psychology. Cr. 1

Prereq: admission to school and community psychology program. Introduction to readings of descriptive and inferential statistical studies in school and community psychology.

563. Research Readings in School and Community Psychology. Cr. 1

Prereq: admission to school and community psychology program. Introduction to applications of research methodology in school and community psychology.

676. Computer Research in Problems of Elementary and Secondary Schools. Cr. 3

Prereq: admission to graduate program. No previous experience in computer programming necessary. Introduction to techniques of using computers in research projects of teachers and administrators in elementary and secondary schools.

761. Evaluation and Measurement. Cr. 2-3

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.

762. Practicum in Evaluation. Cr. 2-6(Max. 6)

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 programs.

763. Fundamentals of Statistics. Cr. 3

Review of mathematics essential for statistics, sampling, computer use. Basic patterns of statistical inference, confidence estimation and significance testing regarding measures of averages, dispersion, correlation, and selected non-parametric statistics. One-way and two-way analysis of variance.

764. Fundamental Research Skills. Cr. 3

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; techniques, methodologies for descriptive and experimental inquiry.

765. Computer Use in Research. Cr. 3

Prereq: EER 763. Introduction to computer use in educational research with emphasis on using statistical packages (MIDAS and SPSS, BASIC programming language); writing statistical programs.

767. Small Computer Applications in Research and Evaluation I. Cr. 3

Prereq: EER 765, CSC 501; CSC 637 recommended. Overview of small computers; emphasis on applications in educational setting and on employment of evaluation and research methodology.

768. Small Computer Applications in Research and Evaluation II. Cr. 3

Prereq: EER 767. Understanding small computer systems in depth; emphasis on modifying systems to employ evaluation and research methodology.

861. Measurement Problems in Medical Education I. Cr. 3

Prereq: EER 761 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.

862. Measurement Problems in Medical Education II. Cr. 3

Prereq: EER 761 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.

863. Advanced Problems in Measurement. Cr. 3

Prereq: EER 761 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.

864. Variance and Covariance Analysis. Cr. 3

Prereq: EER 763 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.

865. Multivariate Analyses. Cr. 3

Prereq: EER 763 or equiv. Discriminant analysis, profile analysis; placement and classification problems; component and factor analysis. Supporting topics and techniques; transformation of variables, computer usage.

866. Research and Experimental Design. Cr. 3

Prereq: EER 763 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.

868. Applied Sampling. Cr. 1

Prereq: EER 763 or equiv. For researchers who wish to maximize the usefulness of the data they obtain in field research; to enable researchers to use powerful sampling procedures without undue emphasis on mathematical derivations.

961. Current Issues and Problems in Medical Education. Cr. 3(Max. 9)

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.

962. Internship in Evaluation and Research. Cr. 2-6

Prereq: EER 761, 763, 764 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.

968. Advanced Research and Experimental Design. Cr. 3

Prereq: EER 764 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.

969. Topical Seminar in Evaluation and Research. Cr. 3(Max. 9)

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 term is available from evaluation and research faculty.

Educational Psychology (EDP)

331. Introduction to Child Study. Cr. 3

Introductory course in human growth and development for those who will be working with children and adolescents in educational settings.

541. Mental Hygiene and Its Relation to the Problems of Education. Cr. 2-3

Provides understanding of the necessary conditions underlying mental health, and a sense of what teachers can and cannot do to foster emotionally healthy and well-integrated personalities in children and youth.

545. Child Psychology. Cr. 2-3

Basic concepts, research findings and problems regarding child development as they apply to the school and home.

548. Adolescent Psychology. Cr. 2-3

Basic concepts, research findings and problems regarding adolescent development as they apply to the school and home.

621. Foundations of Educational Psychology. Cr. 3

Introduction to current issues in educational psychology through lecture and field laboratory experiences.

622. Psychology of Learning Disability. Cr. 3 or 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.

625. Psychology of the Gifted. Cr. 2

Definition and management of gifted children. Discussion of their physical, psychological, social, emotional and academic characteristics.

631. Behavior Modification. Cr. 2-3

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.

632. Practicum in Educational Psychology. Cr. 1-6(Max. 6)

Prereq: consent of adviser and instructor. Closely supervised seminar-laboratory experiences to provide opportunities for evaluation and application of theory related to educational psychology.

634. 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.

635. The Learning Process and Programmed Instruction. Cr. 2-3

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.

- 638. Emotional and Social Problems of the School Child. Cr. 3**
Nature and causes of social and emotional maladjustment of school age children and youth.
- 640. Psychological Problems of Disadvantaged Youth. Cr. 3**
Psychological factors which have special relevance to disadvantaged youth. Sociopsychological factors underlying educational problems of disadvantaged, such as development of self-concepts, conflict in value systems and life styles of the poor. Educational implications discussed.
- 641. Introduction to Psychological Testing. Cr. 3**
Not to be elected by majors in guidance, vocational rehabilitation, school and community psychology. Material fee as indicated in *Schedule of Classes*. Designed for classroom teachers. Presentation of an overall view of group and individual tests used in assessment. Emphasis on comprehension of the rationale and interpretation of instruments and use of reports made to schools. Examination and evaluation of materials available.
- 649. Mental Health and Sexuality. Cr. 2**
Prereq: consent of adviser. Consideration of the role and function sex development plays during childhood, adolescence, and adulthood. Gender identity discussed.
- 721. Advanced Educational Psychology. Cr. 1-4**
Major issues in the field are explored to provide a basis for later specialization. Motivation, learning, individual differences, child development, group processes.
- 722. The Behavioral Change Process in School and Community Psychology I. Cr. 3**
Prereq: admission to school and community psychology program. Analysis of strategies for behavior change that are most frequently applied to children and adolescents.
- 723. Cognitive Processes in Human Learning Related to School Practice. Cr. 2**
How cognitive processes, contents and outcomes are related to child concept formation, concept learning and problem solving in individual and group settings.
- 724. The Behavioral Change Process in School and Community Psychology II. Cr. 3**
Prereq: admission to school and community psychology program. Review of the methodology and theories of behavior and attitude change most applicable to adults.
- 730. Educational Psychology for Practitioners. Cr. 4**
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 fields which have relevance for the practitioner.
- 735. The Learning Process. Cr. 2-3**
Substantive issues involved in learning as they relate to school practice.
- 737. Seminar on Emotional Disturbances - Treatment and Behavior Control. Cr. 3**
Understanding of the processes relevant to emotional maladjustment.
- 738. Dynamics of Human Behavior. Cr. 2-3**
Application of Kurt Lewin's principles of topological and vector psychology to human behavior in educational settings.
- 739. Professional Seminar in School Psychology. Cr. 1**
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.
- 740. Social Psychology of Educational Issues. Cr. 3**
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.
- 741. Human Developmental Psychology. Cr. 3-4**
Survey of research from psychoanalytic and learning viewpoints on human development from birth to adulthood. Emphasis on school environment and community psychology practice.
- 742. 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.
- 743. Applications I: Behavioral Psychology and Social Learning. Cr. 4**
Behavioral techniques used in dealing with the social behavior of both groups and individuals.
- 744. Applications II: Behavioral Psychology and Academic Behavior. Cr. 4**
Prereq: consent of instructor. Behavioral techniques used in dealing with the academic behavior of both groups and individuals.
- 745. Experimental Analysis of Behavior. Cr. 3**
Prereq: consent of instructor. Analysis and synthesis of the results and methodology of studies in the principles of behavioral psychology.
- 746. Topical Seminar in Behavioral Psychology. Cr. 3**
Prereq: consent of instructor. Research findings, issues and applications in specific areas of behavioral psychology. Topic to be selected in advance.
- 747. Advanced Psychodiagnostics. Cr. 3**
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.
- 749. Psychological Evaluation I. Cr. 1 or 3**
Material fee as indicated in *Schedule of Classes*. Intensive overview of psychological tests, psychometric theory of intelligence, educational achievement, and the assessment of personality.
- 751. Counseling Children Under Stress. Cr. 3**
Prereq: admission to marriage counseling program. The behavior of children exposed to marital strife and its consequences. Children of all ages studied with a consideration of remedial measures available to alleviate the negative effects of stress.
- 752. Legal Aspects of Marriage and Divorce for Counselors. Cr. 3**
Prereq: admission to marriage counseling program. An overview of the law of marriage and custody of children. Students are familiarized with court procedures and legal resources in the tri-county area.
- 753. Diagnostic Study of Learning Disability. Cr. 3**
Prereq: EDP 622. 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.
- 754. Diagnostic Study of Learning Disability - Advanced. Cr. 3**
Prereq: EDP 753. 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.

756. Psychological Evaluation II. Cr. 4

Open only to students in school and community psychology program. Material fee as indicated in *Schedule of Classes*. The selection of test batteries for use in school and community settings; the development of prescriptive recommendations. Emphasis on objective scales.

761. Psychology of Deviancy and Exceptionality in School Children. Cr. 4

Prereq: admission to the school and community psychology program. An intensive analysis of psychopathology and behavioral disorders in childhood based on the major theoretical viewpoints.

762. Psychological Resources in the Community. Cr. 4

Open only to students in the school and community psychology program. Students are placed in community mental health agencies where they can observe and interact with exceptional children under supervision.

771. Psychological Evaluation III. Cr. 4

Open only to students in school and community psychology program. Material fee as indicated in *Schedule of Classes*. Introduction to administration, scoring, and interpretation of projective techniques employed in clinical assessment. Rorschach, figure drawing and thematic instruments (TAT, CAT).

796. Research in Educational Psychology. Cr. 1-8(Max. 8)

Prereq: written consent of adviser.

821. Fundamental Studies in Educational Psychology I - Learning. Cr. 3

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.

823. Fundamental Studies in Educational Psychology II - Growth and Development. Cr. 3

Prereq: admission to a doctoral program or consent of instructor. Contemporary issues in child growth and development related to classroom practice.

824. Fundamental Studies in Educational Psychology III - Group Dynamics. Cr. 3

Prereq: admission to a doctoral program or consent of instructor. Critical evaluation of research and research methods in the field of group dynamics related to education.

825. Fundamental Studies in Educational Psychology IV. Cr. 3-9(Max. 9)

Prereq: consent of adviser. Advanced study of a specific area in psychology with application to educational practice. Topics to be announced in *Schedule of Classes*.

830. Seminar in Educational Applications of Humanistic Psychology. Cr. 2-6(Max. 6)

Prereq: admission to the humanistic psychology program. Exploration, analysis, and assessment of pertinent and underlying concepts in the educational aspects of humanistic psychology. Involvement in an open and humanistic setting.

832. Practicum in Clinical Procedures. Cr. 1-8(Max. 8)

Open only to students in school and community psychology program. Practicum in one of the clinics cooperating with Wayne State University. Testing under supervision of the cooperating clinic. Conferences and seminars.

833. Internship in School and Community Psychology. Cr. 1-8(Max. 8)

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.

931. Doctoral Seminar in Educational Psychology. Cr. 2

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.

Educational Sociology (EDS)

501. Survey of Educational Systems of Major European Countries. Cr. 3

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.

662. Sociology of Urban Schools. Cr. 2-3

Prereq: consent of adviser. Sociological analysis of the societal and institutional problems and processes bearing on the education of children from the various subcultural backgrounds found in modern urban areas. Emphasis on contemporary educational problems in the urban setting.

663. Conflict and Controversy in Public Education: A Sociological Perspective. Cr. 2-3

Discussion and analysis of current problems in public education from a sociological point of view.

762. The Study of Black History and Culture. Cr. 3

Afro-American culture with emphasis on sociological implications in contemporary American society.

763. Educational Sociology. Cr. 2-3

Application of key sociological concepts and knowledge to educational processes in school and society. Basis for advanced specialist work in educational sociology.

764. Topical Seminar in Educational Sociology. Cr. 1-8(Max. 8)

Prereq: consent of instructor. Topics with a unique sociological perspective in education.

765. Intergroup Relations in Community and School. Cr. 2-3

Dynamics of intergroup and intercultural relations; intergroup relations and ideologies in the context of power struggles; civil rights revolution in relation to school and community; theories of change in intergroup relations.

862. Design and Construction of Models in Behavioral Research. Cr. 2-3

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 experience.

863. Seminar: Educational Anthropology. Cr. 2-3

Prereq: EDS 763 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.

864. Socio-Cultural Factors in Learning. Cr. 2-3

Prereq: any graduate course in education 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.

867. Sex Education and Gender Identity in a Cross Cultural Perspective. Cr. 2-3

Prereq: course in educational sociology. Examination of sociogenic and biogenic factors in child socialization with respect to sex role and gender identity. Formal and informal social structure and sex education.

962. Doctoral Seminar in Educational Sociology. Cr. 2

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.

Educational History And Philosophy (EHP)

360. Introduction to Philosophy of Education. Cr. 3

Leading philosophies of education as they bear upon education as a profession and as a discipline.

560. Analysis of Career Education. Cr. 3

Philosophical, historical, social, and psychological foundations of career education; various models of career education.

760. Philosophy of Education. Cr. 2

Philosophic inquiry into educational theory and practice. For teachers, counselors, curriculum directors, administrators, and those in related professions.

761. Comparative Education. Cr. 3

Extant and emerging educational systems of other nations: political, economic, and cultural factors. Orientation for study and research abroad.

762. History of Education in the United States. Cr. 2

Historical background of selected contemporary problems, issues, and movements in education.

763. History of Western Educational Thought. Cr. 2

Ideas that have shaped educational practice and theory in the West. Use of history in the examination of prevailing educational assumptions and values.

764. Seminar: Economic and Political Philosophies and Policies As They Affect Education. Cr. 2-4

Import for educational aims, methods, and the organizational structure of educational systems of economic and political philosophies and policies.

767. (HED 853) History and Philosophy of Higher Education in America. Cr. 3

Prereq: consent of adviser. Growth and development of American higher education; influential events, circumstances, and ideas.

768. Seminar: Current Controversies in Education. Cr. 3(Max. 6)

Selected contemporary issues; emphasis on value conflicts.

769. Moral Judgment and Moral Education. Cr. 3

Alternative bases for making moral judgments and analysis of alternative forms of moral education. Values clarification, moral stage development, indoctrination, behavior modification, and the moral influence of the school and society.

860. Affective Education. Cr. 2

Prereq: EHP 360 or 760 or consent of instructor or adviser. Affective

and aesthetic aspects of human nature and conduct in relation to formulating educational methods and goals.

863. Humanistic Philosophies of Education. Cr. 2

Prereq: EHP 360 or 760 or consent of instructor. Critique of existentialism and other forms of humanism as related to the educational enterprise.

865. Seminar: The Educational Thought of John Dewey. Cr. 2

Prereq: EHP 360 or 760 or consent of instructor or adviser. Appraisal of the contributions to educational theory and practice of America's most noted philosopher-educator.

867. Seminar: Special Problems in Educational Theory. Cr. 2(Max. 4)

Prereq: EHP 360 or 760 or consent of adviser or instructor. Alternative theoretical grounds for resolving educational problems.

868. Seminar: Ethical Problems in Education. Cr. 2(Max. 4)

Prereq: EHP 360 or 760 or consent of instructor or adviser. Ethical dimensions of selected educational policies, practices, and movements.

960. Doctoral Seminar in Philosophy of Education. Cr. 2

Prereq: formal admission to a doctoral program in education. For doctoral students majoring in other areas only. Systematic study of the field of philosophy of education.

Vocational Rehabilitation Counseling (VRC)

541. Survey of Rehabilitation. Cr. 3

Introduction to rehabilitation, including: philosophical, historical and legislative influences; public and private organization of rehabilitation services; characteristics of handicapped groups; and the vocational rehabilitation process.

547. Seminar and Special Projects in Rehabilitation. Cr. 3

Exploration of issues currently important in rehabilitation and of special interest to individuals: rehabilitating special disability groups; new rehabilitation methods; and unmet needs in rehabilitation.

548. Survey of Disabling Conditions. Cr. 3

Medical information related to specific disability groups, i.e. paraplegia, coronary disease, renal disability. The course, onset, prognosis and treatment of each disability including psychological and vocational implications.

741. Vocational Rehabilitation of the Handicapped. Cr. 3

Prereq: consent of instructor. Rehabilitation philosophy; historical, legislative, and organizational concerns in serving the handicapped. Causes, incidence, and nature of various disabilities; diagnosis, treatment, education and training, placement and follow-up.

742. Practicum in Vocational Rehabilitation. Cr. 3-6(Max. 12)

Prereq: admission to the vocational rehabilitation counseling 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.

743. Rehabilitation Counseling of the Handicapped. Cr. 3

Prereq: VRC 741 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.

744. Advanced Rehabilitation Counseling of the Handicapped. Cr. 3

Prereq: VRC 743 or consent of instructor. Limited to students working with disabled clients. Analysis of case histories; client's social milieu; the rehabilitation plan; community resources; counselor-client relationship. Type of counseling most appropriate in rehabilitation; principles and techniques in case recording.

745. The Placement Process in Rehabilitation Counseling. Cr. 3

Prereq: VRC 741 or consent of instructor. Vocational structure of society; occupational information in rehabilitation counseling; job development; job analysis related to employment of the handicapped; job entry requirements; selective placement procedures; follow-up techniques; case studies.

747. Seminar in Vocational Rehabilitation. Cr. 3

Prereq: major in vocational rehabilitation counseling and consent of instructor.

748. Medical Information for Vocational Rehabilitation Counselors. Cr. 3

Prereq: VRC 741 or consent of instructor. Open only to majors in vocational rehabilitation counseling. Consideration of medical care in the rehabilitation process. Etiology, prognosis, therapy, and related psychological factors. Relationship of physical capacities and limitations of disabled individuals to job functioning.

749. Psychiatric Information for Vocational Rehabilitation Counselors. Cr. 2

Psychiatric information for rehabilitation counselors to develop an understanding of disabling psychiatric conditions. Interrelationship of emotional factors and vocational behavior.

751. Pre-Vocational Preparation for the Handicapped. Cr. 3

Principles of work adjustment, psycho-social factors in disability; pre-vocational evaluation and training for handicapped youth and adults. Problems, methods, and techniques in work adjustment programs.

752. Sexual Rehabilitation Counseling of the Disabled. Cr. 2

Prereq: master's degree applicant or consent of instructor. Philosophy, objectives, nature, and scope of sexual rehabilitation counseling with the disabled. Information, methods, and procedures that facilitate sexual adjustment.

796. Research in Vocational Rehabilitation. Cr. 1-6(Max. 6)

Prereq: written consent of adviser.

College of Education Directory

Dean	Room 441, Education Building; 577-1620
Associate Deans	Room 441, Education Building; 577-1620
Assistant Dean	Room 441, Education Building; 577-1620
Division Head, Academic Services	Room 489, Education Building; 577-1600
Division Head, Administrative and Organizational Studies	Room 319, Education Building; 577-1742
Director, Library Science Division	Room 315, Kresge Library; 577-1825
Division Head, Teacher Education	Room 241, Education Building; 577-0900
Associate Division Head, Teacher Education	Room 269, Education Building; 577-0902
Division Head, Theoretical and Behavioral Foundations	Room 319, Education Building; 577-1742

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 society 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 computers and, above all, an imagination and an 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 their work. 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 career leading to executive 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 competence in the practice of 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 doctoral 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, 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. 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/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 offered through the Graduate School with majors in chemical, civil, computer, electrical, industrial, mechanical, metallurgical engineering, and operations research. For graduate degree information, see page 121.

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 164.

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 Engineering Accreditation Commission (EAC) of the Accreditation Board for Engineering and Technology (ABET), formerly the Engineering Council for Professional Development (ECPD). 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, renowned as a center 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 Education Program described on page 121.

The College is affiliated with ten 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; optical metallography; soil mechanics, sanitary engineering; roadway and building materials, structural modeling; communications; computers; networks, electronics, microwaves, holography and lasers; automotive; human factors; computer aided manufacturing; robotics; sand casting and testing; 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, and an acoustics and noise control laboratory.

Available to all engineering and engineering technology students are remote time-sharing computer terminals; a machine shop, a model shop, a photographic darkroom; design rooms; and audio-visual carrels. Mini- and micro-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 139 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 125-127 for information regarding the admission and registration procedures as well as to pages 8-17 for general undergraduate academic matters.

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 program for each of these degrees requires 136 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 125.

On occasion students may find it convenient or necessary to strengthen their background in English, chemistry, 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.

Completion of the degree requirements in four years requires the election of approximately seventeen credits each term during the academic year. A student who elects the Cooperative Education Program will require five years.

Of the total credits for the degree, at least the last thirty 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 thirty 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 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. Undecided students will elect the course B E 100, Introduction to the Profession of Engineering, during either the first or second semester of their 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 120 for information regarding the Division of Engineering requirement in English composition proficiency.

DIVISION OF ENGINEERING

Program Planning

The planning of a program of studies is carried out in conference with a faculty adviser. Students are encouraged to meet with their adviser whenever there may be a need to do so. This contact must be sought at least once each term for registration purposes.

The sequences of courses shown in the following curriculum listings may be modified provided course prerequisites are satisfied. Students may attend the University on either a full-time or part-time basis, noting that twelve credits are considered by the University as a minimum full-time load. The maximum load that a student carries 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 semester, the fifteen to nineteen 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 semester. The University *Schedule of Classes*, published for each semester, 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 125. 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 125.

Basic Science Requirement

All undergraduate engineering students are required to complete at least sixteen credits (four courses) of basic science courses, including Chemistry 107, Physics 217 and 218. 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 and/or additional chemistry and physics courses. For those curricula where the remaining course is not specifically identified, a science elective is required. At the end of each curriculum listing, courses acceptable as science electives within that curriculum are identified.

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/her social responsibilities. Studies involving the engineer in sociological, economic and aesthetic judgment 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 eight credits in the general education program designed specifically for engineering students. These courses are designated in the various curricula listings as History 195 and 196.

All engineering students are required to complete a total of seventeen 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 xx.

Economics Requirement: At least one course in economics is required. See the curriculum listings for special recommendations.

Socio-Humanistic Electives: Credits earned in the following subject areas are defined as acceptable in satisfying the socio-humanistic requirement: American and English literature, anthropology, economics, fine arts, literature courses in 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 identified with the development of a skill are not acceptable for the fulfillment of 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. The courses, English 305 and 306, entitled Technical Report Writing I and II, respectively, are to be elected. Note that successful completion of the English Composition Proficiency Examination is a prerequisite for English 305.

English Composition Proficiency

Please refer to page 125 for information concerning determination of English requirements for entering students.

Each student is required to meet the English Proficiency Requirement in Composition. Students who have had their entire college experience at Wayne State University must complete the requirement before attaining junior status (sixty semester credits). Transfer students must complete the examination during their first semester at this university. In the event that the student does not pass this examination, immediately following failure in the examination, English 108 must be elected and completed with a satisfactory grade. 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. Students taking the English Proficiency Examination must apply to Testing and Evaluation, University Counseling Services; the fee is \$7.00.

Engineering Science Electives

Engineering science courses have their roots in mathematics and basic science and provide a bridge between mathematics, 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 'Engineering Science Elective'. Specific departmental recommendations may appear at the end of the particular curriculum listing. Students should consult their academic adviser concerning these 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. The purpose of the technical elective is to increase the depth or breadth of one's professional knowledge. Courses should be selected so as to meet this objective. Engineering courses elected as technical electives are normally selected at the '500' level.

Cooperative Education Program

Students who wish to enrich their education with on-the-job engineering experience may enroll in the Co-operative Education Program. In this program, full-time study terms are alternated with full-time work assignments in co-operating industries. The program may be entered at the beginning of the junior year. Special co-operative programs are available on a limited basis providing special arrangements in the definition of the work-study period. For further information, consult the Co-op Coordinator at the University Placement Office.

Most of the work assignments are in the Metropolitan Detroit area on a commuting basis; however, very fine job opportunities are available in other cities and states. 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. Also, a limited number of internship scholarships sponsored by General Motors Corporation and the American Natural Resources Company are available on a competitive basis. Applications for these scholarships are available through the Dean's Office, room 141 of the Engineering Building.

Each student may enroll for one academic course while on work assignment. This must be done with the approval of the student's adviser. Following each work assignment, the student may elect to enroll in Basic Engineering 250 or Chemical or Metallurgical Engineering 351 for one credit. Election of the course requires the completion of a report on the work experience to the department adviser and to the Co-op Coordinator. This credit for work will not be counted toward graduation unless permission is specifically recommended by the department chairperson. Each department has assigned a specific faculty member as academic adviser to all College Co-op students within that curriculum. Students are automatically enrolled for a zero credit course each term that they are on a co-op assignment to insure that the experience appears on their transcript.

A brief report covering each work assignment is to be submitted to the Co-op Coordinator, whether there has been enrollment in the above one credit courses or not. The student's performance on the job is rated by his/her industrial supervisor. Salaries and other benefits are paid for the time spent on each work assignment. For details and enrollment procedures, contact the Co-op Coordinator in the University Placement Office.

A Graduate Engineering Internship Program is available for Chemical Engineering graduate students. Eligible and interested students should inquire at the Chemical Engineering Office, room 231 Engineering, and at the University Placement Office.

ENGINEERING GRADUATE DEGREE PROGRAMS

For complete information regarding graduate rules and regulations, students should consult the Graduate School section of this bulletin, beginning on page 18. The following additions and amendments pertain to the College of Engineering.

After receiving credentials from the Office of Admissions, and before registration, the student should contact the graduate adviser in his/her major department for details of program planning and to discuss requirements and course work.

The Graduate Programs of the College of Engineering cover a broad range of engineering areas from interdisciplinary programs in engineering to the traditional academic programs. Extensive research facilities are available for students interested in thesis and dissertation study. For students employed either full or part-time, the Graduate Programs of the College are particularly suited to the needs of the metropolitan Detroit area. All of the non-thesis graduate programs of the College are offered in the evenings, some in suburban locations, and can be pursued on a part-time basis. Questions related to specific degree programs or to specific background requirements should be addressed to the appropriate Graduate Adviser.

Graduate Advisers for Specific Departments

Chemical and Metallurgical Engineering:

Dr. Ralph H. Kummier (Chemical Engineering),
231 Engineering Building
Dr. W. Lance Haworth (Metallurgical Engineering),
128 Engineering Building

Civil Engineering:

Dr. Tapan Datta,
667 Merrick Avenue

Electrical and Computer Engineering:

Dr. Edward Della Torre,
306 Engineering Building

Industrial Engineering and Operations Research:

Dr. H. Allan Knappenberger,
640 Putnam Avenue

Mechanical Engineering:

Dr. Michael Rabins
667 Merrick Avenue

Interdisciplinary Graduate Programs:

Dr. Edward R. Fisher, Associate Dean
235 Engineering Building

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, computer, electrical, industrial, operations research, 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 thirty-two credits under the following degree plans approved by the College:

Plan A consists of a minimum of twenty-four credits in course work, a minimum of eight credits of thesis and a seminar or an oral presentation on the thesis research.

Plan C requires a minimum of thirty-two credits. A thesis is not required.

— Major Credits

Credits earned in the student's major field are designated as major credits. Of the minimum of thirty-two credits required for the master's degree, six credits must be in graduate courses in the major (700 and 800 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 six credits should be taken in areas other than the student's major. This requirement can be waived if the student received an undergraduate degree in a different discipline.

— 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/her 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 a *Plan of Work*, the student should carefully evaluate 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 or the chairperson of the Departmental Graduate Committee. Students enrolled in master's degree programs must file a *Plan of Work* by the time twelve graduate credits have been earned, or subsequent registration may be denied. In most departments, candidacy should also be authorized at this time. 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 found in the Graduate School section of this bulletin, page 24.

Doctor of Philosophy

The Doctor of Philosophy degree is offered by the College of Engineering in the majors areas of: chemical engineering, civil engineering, computer engineering, electrical engineering, industrial engineering, operations research, mechanical engineering and metallurgical engineering. More detailed information may be obtained by contacting the departmental advisers.

A minimum of ninety credits beyond the bachelor's degree is required for the Ph.D. program including thirty credits for the dissertation. For admission into a Ph.D. Engineering program, 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 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 3.3.

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/she may transfer the credits toward the Master of Science degree program after passing a qualifying examination.

There are no general foreign language requirements for the Ph.D. degree. Specific requirements can be made by the Ph.D. advisory committee and are designed to suit individual Ph.D. applicants.

DEPARTMENTAL GRADUATE PROGRAMS

In addition to the general graduate degree requirements outlined above, each department has additional requirements which must be satisfied in its graduate degree programs.

Chemical and Metallurgical Engineering

The Department of Chemical and Metallurgical Engineering offers graduate programs leading to the Master of Science in Chemical Engineering, Master of Science in Metallurgical Engineering, and Doctor of Philosophy degrees. The requirements for the M.S. include: thirty-two credits beyond the B.S. degree, twenty-four credits of which must be taken in the Department. For a M.S. in Chemical Engineering, the following courses must be taken: CHE 655, 710, 720, 730 and 740. For a M.S. in Metallurgical Engineering, the following courses must be taken: MET 705, 710 and 728. Either a thesis of ten credits under Plan A or three credits of directed study 790 or research 896 under Plan C are required. In CHE, one credit of CHE 851 can replace the 790 or 896 requirement.

The requirements for the Ph.D. include ninety course credits beyond the B.S. degree, of which thirty credits are dissertation, and a sequence of examinations as follows: a preliminary exam, taken one year after the B.S., a qualifying exam (written and oral) taken two years after the B.S. and a final oral exam after completion of the Ph.D. dissertation.

Part-time study featuring evening courses and cooperative programs allow professionals working in local industry to pursue graduate degrees while continuing employment. A number of graduate courses are offered at off-campus locations and may be taken on a credit or non-credit basis.

Civil Engineering

The Department of Civil Engineering offers graduate programs leading to the Master of Science in Civil Engineering and Doctor of Philosophy degrees. The students in the graduate program may specialize in such Civil Engineering specialties as Structures, Geotechnical, Environmental, Transportation, Construction Management, and Public Works. The requirements for the M.S. in Civil Engineering include a minimum of thirty-two credits beyond the Bachelor's degree out of which an equivalent of two courses must be at the 700 level. Further, the student must take two Civil Engineering core courses, C E 701 and 702, as well as two courses outside the department of Civil Engineering. The students in the Master's program may select a plan which consists of all course work or may select the thesis plan in which a student can take eight credits of Master's thesis, the students may also take Directed Study and Research when approved by their adviser.

The requirements for the Ph.D. degree in Civil Engineering include a total of ninety credits beyond the B.S. degree. Out of these ninety credits, sixty will be course work and directed study and thirty credits of dissertation research including a sequence of qualifying and final examinations.

Electrical and Computer Engineering

The Department of Electrical and Computer Engineering offers graduate programs leading to the Master of Science in Electrical Engineering, Master of Science in Computer Engineering and Doctor of Philosophy degrees. The requirements for the M.S. include: thirty-two credits beyond the B.S. with three required graduate courses, one each out of ten different core areas. Students can select either Plan A, requiring an eight credit thesis, or Plan C, consisting entirely of course work for the M.S. degree.

The requirements for the Ph.D. are a total of ninety credits beyond the B.S. with thirty credits for the dissertation and successful completion of a sequence of qualifying and final examinations. Major areas of graduate study in this field include: bioinstrumentation, computer engineering and electrical engineering.

Students from a wide variety of undergraduate programs not specifically related to this discipline can be admitted into the M.S. program by taking a sequence of undergraduate courses designed to prepare them for the required graduate curriculum.

Industrial Engineering and Operations Research

The Department of Industrial Engineering and Operations Research offers graduate programs leading to the degrees of Master of Science in Industrial Engineering, Master of Science in Operations Research, and Doctor of Philosophy. The Master of Science in Industrial Engineering program offers specialization in engineering management, operations research, human factors, reliability and quality control, operations management, and manufacturing systems. The specific course requirements differ for each area of specialization. A Bachelor of Science degree in engineering is required for admission. In general, thirty-two credits are required for students with a B.S. degree in Industrial Engineering, and forty credits are required for students with a B.S. degree in another engineering discipline.

The Master of Science in Operations Research program is open to students with bachelor's degrees in engineering, mathematics, mathematics-based science or other disciplines which include mathematics through differential equations, computer programming, probability, and the development of quantitative problem solving skills. The minimum requirement for the degree is thirty-two credits.

Additional credits may be required to satisfy prerequisites. The program includes a required set of methodology courses and an elective application area. The application area may be satisfied by formal courses, project courses, or a thesis.

The minimum requirements for the Ph.D. degree include sixty credits of course work beyond the B.S. degree and thirty credits of dissertation. Areas of specialization are offered in both industrial engineering and operations research. A preliminary examination is required. The written part of the examination is given in eight half day sessions with each session covering a broad area of study. Each student, with the approval of the Graduate Committee, will elect to be examined in five of the eight areas. The oral examination consists of the student's presentation and defense of a solution to a problem which is assigned two weeks prior to the date of the examination. A written and oral qualifying examination and an oral dissertation defense are also required.

Part-time programs of study allowing students to continue full-time employment in local industries, are available. Most of the courses in these programs are offered in the evening and some programs are offered at off-campus sites.

Mechanical Engineering

The department of Mechanical Engineering offers graduate programs leading to the Master of Science and Doctor of Philosophy degrees. The requirements for the M.S. include: thirty-two credits total beyond the B.S. degree, twenty-four of which must be taken in the Mechanical Engineering Department, including one course from among M E 720, 730, 740, 755 and 761; and one other course at or above the 700 level. Four of the credits must be in the mathematical analysis area taken from an approved course list on file in the Department Office. Students may opt to perform a M.S. thesis investigation for up to eight credits or undertake directed study in a specialized area for up to four credits. The minimum requirements for the Ph.D. include ninety course credits beyond the B.S. degree, thirty credits of dissertation research and a sequence of qualifying and final examinations.

Part-time study (with most courses offered in the evening) and cooperative programs allow professionals working in local industry to pursue undergraduate and graduate degrees while continuing employment. A number of graduate courses are offered at off-campus locations and may be taken on a credit or non-credit basis.

Research Centers

At graduate and advanced undergraduate levels, opportunities exist for students to participate in the programs of the research centers. The *Research Institute for Engineering Sciences* promotes fundamental multi-disciplinary research programs in science and engineering. Some of the current research programs include the non-equilibrium chemistry and plasma processes responsible for molecular laser operation, fundamental studies on molecular interactions using molecular beams, laser-driven chemical reactions, the use of holography to study surface phenomena in solids, studies on the non-equilibrium chemical dynamics of atmospheric and combustion systems and advanced mathematical, numerical and graphical techniques for the solution of complex engineering problems.

The *College of Engineering Energy Center* provides a focal point for interdisciplinary energy related research in the College. Major areas of interest include the production and evaluation of alternate fuels ranging from the nuclear production of gaseous fuels, the extraction of oil from shale rock and the characteristics of composite coal-oil mixtures to the effective usage of solar energy and the combustion characteristics of micro-pulverized coal systems. Extensive use is made of advanced numerical techniques in studies on combustion

mechanisms. A wide range of experimental facilities are available for investigations on conventional and alternate fuels, as well as in the study of the energy conservation and environmental impact of alternate fuel systems.

The *Bioengineering Center* of the College is an interdisciplinary group which combines expertise in biomechanical, biochemical and bioelectronic areas between the College and the Wayne State Medical School. Major areas of research include the collection of fundamental data on safety devices in all areas of transportation vehicles, simulation studies on the dynamic response of human systems under impact loads, the effect of microwave energy on living organisms and health care equipment. Extensive use is made of numerical simulation in these studies.

Through the *Center for Automotive Research* a broad range of research programs in alternate fuels, combustion phenomena in engines, emissions measurements on diesel and combustion engines, noise and vehicle acoustics, vehicle dynamics and vehicle safety are identified. Drawing from faculty in several engineering departments, interdisciplinary research is fostered and maintained. Students have the opportunity to gain a broad range of research and educational skills through participation in the Center programs.

The *Health Systems Productivity 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.

The *Manufacturing Engineering Research Institute* coordinates interdisciplinary interests in manufacturing research. Combining faculty research interests in material properties and behavior, machine design and use, productivity and quality control, and computer-aided manufacturing, the Institute provides a laboratory forum for studying some of the most important problems facing high technology growth. Students at both undergraduate and graduate levels have access to the facilities of the Institute.

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/her control.

To be awarded a graduate degree, the student must have achieved at least a 3.0 (B) average in all major required courses (see departmental requirements for details) and an average of 3.0 (B) in all other courses used to satisfy degree requirements.

Revalidation of Credit —

Master's Degree

Over-age credits, not to exceed six, which are between six and ten years old and which were taken at Wayne State University, may be revalidated 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 by examination.

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 announcement, 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. One 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.

Chemical Engineering Graduate Internship Program

A Graduate Engineering Internship Program is available for Chemical Engineering graduate students. Eligible and interested students should inquire at the Chemical Engineering Office, room 231 Engineering, and at the University Placement 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.....	1.5
Trigonometry.....	0.5
Physics.....	1
Chemistry.....	1
Social Science or Foreign Language.....	2
Electives.....	3

The freshman with this background enters the regular scheduled program if he/she earns satisfactory scores on the qualifying examinations in mathematics, chemistry and 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, chemistry and English. Transfer students must take the English qualifying examination and if they do not have transfer credit to the College of Engineering in mathematics and chemistry, they are *required* to take 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 201. For admission to Mathematics 201, a qualifying examination must be passed. Failure to qualify for Mathematics 201 may result in the student being placed in a lower level course such as 095 or 180, depending upon the student's performance. Students may apply to take the Qualifying examination in either Mathematics 180 or 201 depending upon their preparation in mathematics. The Mathematics 180 Qualifying Examination is based upon one and one-half units of high school algebra and one unit of

high school geometry. The Mathematics 201 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 107. Qualification for Chemistry 107 requires a satisfactory score on the Chemistry Qualification Examination. If a student is not properly prepared to consider placement in Chemistry 107, direct entry into Chemistry 105 is permissible. Four credits from Chemistry 105 will then replace 107 in the student's program.

— English

All entering freshmen and transfer students shall determine their potential in writing at Wayne State by taking the English Placement Examination. Students whose score on the English Placement Examination indicates need for additional instruction and practice in composition must elect and pass English 101. This examination is not a replacement for the English Composition Proficiency Examination.

Degree Credits

Consult the total degree credit requirement listed at the end of each curriculum listing on pages 129 through 138.

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 should questions arise regarding their obligations and activities prior to the beginning of classes for the semester 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 the department chairperson or the Associate Dean on this matter.

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 of any of the engineering colleges.

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 8.

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 serious prerequisite problems and loss of credit.

Guests

A student attending another engineering college who wishes to take course work at Wayne State for the purpose of credit transfer to the 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 pages 19-20 in the section 'Graduate Admission'.

The Michigan Conference of Engineering Deans has entered into an agreement endorsing the exchange of guest privileges between ABET-accredited engineering curricula in Michigan.

Registration

All Division of Engineering undergraduate students must secure an Engineering adviser's signature approving the program request before pursuing registration for courses. See page 10 for information relating to late registration.

Course Materials Fees

A course materials fee may be assessed for registration in certain courses, principally courses with associated laboratory work or computing requirements or where University supplied materials warrant such a fee. Course Material Fee Cards are to be turned into the course instructor by the end of the second week of classes. Students failing to comply with this will be withdrawn from the course.

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 the course instructor in advance for all predictable absences. Absences due to illness or conditions beyond the student's 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 twelve credits or more, is cited by the Dean for distinguished scholarship and is included on the Dean's List of Honor Students.

Probation

A student is considered to be on probation whenever his/her cumulative honor point average falls below 2.0. A student may also be placed on probation whenever his/her 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/her 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 the honor point deficiency promptly. (Honor point deficiency is obtained by subtracting the total number of honor points from twice the total number of credits 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 the first semester on probation, the student's honor point deficiency has not increased, he/she may be continued on probation for one more semester depending upon the circumstances related to the case. For part-time students, a semester 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. Multiple occurrences of probation will result in the student's exclusion from the College.

A student may be refused the privilege of registering in the Division of Engineering if, at any time, his/her honor point deficiency exceeds sixteen points, or if he/she has not returned to regular status at the end of his/her second semester 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.

Following exclusion from the Division 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/her status. He/she should not make the request, however, unless he/she 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 the student's program, or in a course in the student's department of specialization, or in a required course in mathematics, physics or chemistry, the student may be required by the chairperson of his/her major department or by the Associate Dean to repeat that course.

Any course which has been completed for audit may not be subsequently enrolled in for credit nor may credit be obtained 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/she received a grade of D or E must repeat that course at Wayne State University unless prior written approval is secured for his/her department chairperson and the Dean to take the course at a designated institution.

Withdrawal From Courses

General rules governing the withdrawal from courses and change of program can be found on page 14. Special note should be taken of the fact that the College of Engineering policy on withdrawal from a course or courses is not to grant permission to withdraw after Friday of the twelfth week of classes.

Students are directed to pages 14-15 of this bulletin for information relating to repeating courses 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 3.5, if the candidate has earned at least 100 credits in residence; 3.6, if between 60 and 100 credits.

With high distinction: An honor point average of 3.7, if the candidate has earned at least 100 credits in residence; 3.8, if between 60 and 100 credits.

Each year, commencement exercises are held in December for summer and fall semester graduates and in May for winter semester 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, Fundamentals of Engineering, of the examination immediately upon graduation or at the examination just preceding 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.

Numerous loans and grants as well as work study programs are available through the Office of Scholarships and Financial Aids.

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 Graduate School. Grants in Aid as well as National Direct Student Loans are available through the Office of Scholarships and Financial Aids; see page 12.

Assistantships, fellowships, and scholarships are available in many graduate departments. Information concerning these may be obtained from the chairperson of the department in which the student desires to major.

From time to time, scholarships and other opportunities are opened to undergraduate students on other than a continuing basis. Inquiries should be directed to the Associate Dean of the College of Engineering, Room 141, Engineering Building.

The following scholarships and fellowships have been granted to engineering students in recent years:

American Metal Climax Foundation Scholarship—Climax Molybdenum
American Natural Resources Scholarship Program
American Society for Metals Foundation Scholarship in
Metallurgical Engineering
American Society of Tool and Manufacturing Engineers
Scholarship in Engineering
Ansul Corporation Scholarship
BASF Wyandotte Corporation Scholarship Program
Burroughs 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 and 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 Fredrick G. Weed Graduate Scholarship in Chemical Engineering
 The General Motors Scholarship Program
 The Ford Motor Company Scholarship Program
 The Graduate Professional Scholarships
 The James E. and Christine L. Orr Scholarships in Engineering
 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 including the College of Engineering Open House.

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, a national electrical engineering honorary society, was founded at the University of Illinois in 1904. Election to this society is based on demonstrated outstanding ability, as evidenced by scholarship and individual achievement. 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/her 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 profession. The Wayne State University student chapter was founded in 1973.

Student Branches of Professional Societies add much to the education and preprofessional experience 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 Engineering
- 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



ENGINEERING CURRICULA

CHEMICAL ENGINEERING

Office: 231 Engineering Building

Chairperson: R. H. Kummler

Associate Chairperson: J. H. McMicking

Professors

C.L. Corey, H.G. Donnelly, E.R. Fisher, J. Jorne, R.H. Kummler, R. Marriott, E. W. Rothe, S.K. Stynes

Associate Professors

C.B. Leffert, J.H. McMicking, R.W. Mickelson

Assistant Professors

D.A. Crowl, E. Gulari, S. O. Salley

Adjunct Professors

B. Shorthouse, H. Trieshman, P. Warner

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 the chemical engineer 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; environmental control and medical systems.

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 graduates to enter the chemical industries with confidence that their abilities will find almost immediate use. Chemical engineers may enter the division of production and advance toward plant or production management positions, or they may find their training useful 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.

Chemical Engineering Curriculum

Freshman Year

First Semester

	<i>Credits</i>
MAT 201 — Calculus I	4
CHM 107 — Principles of Chemistry I	4
HIS 195 — Society and the Economic Transition	4
CSC 105 — Computer Science Laboratory for Engineers	1
P S 103 — The American Governmental System	3

Total: 16

Second Semester

MAT 202 — Calculus II.....	4
PHY 217 — General Physics.....	4
HIS 196 — The Impact of Technology.....	4
CHM 108 — Principles of Chemistry II.....	5
Total:	17

Sophomore Year

First Semester

	<i>Credits</i>
MAT 203 — Calculus III.....	4
PHY 218 — General Physics.....	4
MET 130 — Science of Engineering Materials.....	4
CHM 224 — Organic Chemistry I.....	4
Total:	16

Second Semester

MAT 204 — Calculus IV.....	4
CHE 230 — Thermodynamics I.....	3
CHE 280 — Material and Energy Balances.....	3
CHE 304 — Computational Methods.....	3
I E 322 — Probability and Statistics.....	3
CHM 236 — Organic Chemistry II: for CHE.....	2
Total:	18

Junior Year

First Semester

	<i>Credits</i>
CHE 322 — Measurements Laboratory.....	2
MET 260 — Introduction to Metallurgical Engineering.....	3
ENG 305 — Technical Report Writing I.....	3
CHE 320 — Chemical Process Engineering I.....	4
CHE 330 — Thermodynamics II.....	3
CHM 532 — Physical Chemistry for CHE I.....	1
Total:	16

Second Semester

ENG 306 — Technical Report Writing II.....	3
CHM 312 — Analytical Chemistry.....	4
CHE 382 — Chemical Engineering Laboratory.....	2
CHE 340 — Kinetics and Reactor Design.....	3
CHE 386 — Chemical Engineering Seminar I.....	0
CHE 380 — Chemical Process Engineering II.....	4
CHM 544 — Physical Chemistry II.....	3
Total:	19

Senior Year

First Semester

	<i>Credits</i>
ECO 101 — Principles of Macroeconomics.....	4
ECE 330 — Introduction to Electrical Circuits.....	3
Chemistry Technical Elective.....	3
M E 240 — Statics.....	3
CHE 420 — Chemical Process Engineering III.....	3
CHE 426 — Chemical Engineering Seminar II.....	0
Chemical Engineering Technical Elective.....	3
Total:	19

Second Semester

Socio-Humanistic Elective *.....	2
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C E 360 — Elementary Mechanics of Materials.....	3
Chemical Engineering Design Elective.....	4
CHE 486 — Chemical Engineering Seminar II.....	1
CHE 480 — Chemical Process Integration.....	3
CHE 460 — Process Dynamics and Simulation.....	3
ECE 331 — Electrical Circuits I: Laboratory.....	1
Total:	17

TOTAL CREDITS..... 138

TECHNICAL ELECTIVES: Consult department adviser. Chemistry and Chemical Engineering Design categories must be satisfied.



* ECO 102 is recommended; however, since this is a 4 credit course, two credits will not be applicable toward the degree.

CIVIL ENGINEERING

Office: 667 Merrick

Chairperson: T.K. Datta

Associate Chairperson: C.W. Lewitt

Professors

L.T. Cheney, T.K. Datta, D.S. Ling (Emeritus), D. Newton (Emeritus), J.M. Paulson

Associate Professors

C. Gangopadhyay, T Heidtke, C. W. Lewitt, S. Khasnabis

Assistant Professors

N. Ahmed, H. Aktan, T. Maze

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 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; the development of adequate transportation systems; construction methods and management; and the implementation and management of public works projects designed to improve the urban environment. 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 background in the relevant fundamentals, the application of these fundamentals to practice and the decision making process required to design and implement complex systems.

The civil engineering curriculum has been designed to provide a broad education in the basic sciences, mathematics, and engineering sciences, civil engineering analysis and design, and their application to civil engineering practice. The courses in civil engineering may be considered as an array of groups, each 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 may be chosen from several areas in order to broaden one's knowledge. A student who contemplates continuing study at the graduate level should seek the advice of his/her 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

First Semester

	Credits
MAT 201 — Calculus I	4
CHM 107 — Principles of Chemistry I	4
HIS 195 — Society and the Economic Transition	4
Socio-Humanistic Elective	3
C E 101 — Introduction to Civil Engineering	1
CSC 105 — Computer Science Laboratory	1
Total:	17

Second Semester

MAT 202 — Calculus II	4
PHY 217 — General Physics	4
HIS 196 — The Impact of Technology	4
MET 130 — Science of Engineering Materials	4
Socio-Humanistic Elective	3
Total:	19

Sophomore Year

First Semester

	Credits
MAT 203 — Calculus III	4
PHY 218 — General Physics	4
C E 240 — Statics	3
Socio-Humanistic Elective	3
I E 322 — Probability and Statistics in Engineering	3
Total:	17

Second Semester

MAT 204 — Calculus IV	4
Science Elective	4
C E 360 — Elementary Mechanics of Materials	3
CHE 304 — Computational Methods in Engineering	3
ENG 305 — Technical Report Writing I	3
Total:	17

Junior Year

First Semester

	Credits
C E 401 — Civil Engineering Analysis	3
C E 325 — Applied Fluid Mechanics	3
C E 430 — Structures I	2
C E 445 — Civil Engineering Materials	3
ECE 330 — Introduction to Electrical Circuits	3
M E 340 — Dynamics	3
Total:	17

Second Semester

C E 421 — Water Resources	3
C E 460 — Transportation Engineering	4
C E 431 — Structures II	3
C E 435 — Steel Design	3
C E 451 — Introduction to Geotechnical Engineering	4
ECE 331 — Electrical Circuits I: Laboratory	1
Total:	18

Senior Year

First Semester

	Credits
C E 422 — Environmental Engineering	3
C E 436 — Reinforced Concrete I	3
C E 464 — Transportation Design	4
Civil Engg. Design Course or Tech. Elect.	3
ENG 306 — Technical Report Writing II	3
Total:	16

Second Semester

Civil Engg. Design Course or Tech. Elect.	3
C E 485 — Engineering Economy and Decision Theory	3
Technical Electives	9
Total:	15

Total Credits 136

Socio-Humanistic Electives: See page 120 of this Bulletin for Socio-Humanistic requirements.

Science Electives: Civil Engineering students are required to complete four credits of science electives. Faculty advisers should be consulted for specific recommendations.

Technical Electives: Civil Engineering students are required to complete at least nine credits of technical electives. In addition, students are required to complete two courses out of C E 551, C E 528 and/or technical elective courses. Students should consult their faculty advisers for an appropriate list of technical elective courses.



ELECTRICAL AND COMPUTER ENGINEERING

Office: 308 Engineering Building

Chairperson: Edward Della Torre

Associate Chairperson: Abdul H. Qureshi

Professors

R. D. Barnard, F. E. Brammer, E. Della Torre, J. Meisel, A. H. Qureshi, M. B. Scherba (Emeritus), M. P. Shaw, H. Singh (Visiting), Y. Wallach

Associate Professors

D. P. Agrawal, S. Arora, R. Arrathoon, R. F. Erlandson, T. Nanayakkara, P. A. Ramamoorthy, A. Sen, P. Siy, A. Sood

Assistant Professors

F. El-Turkey, S. Mohan

Adjunct Professors

J. L. Gedye, M. C. Steele

Adjunct Assistant Professor

C. Wang

In the field of electrical and computer engineering, basic physical and mathematical principles are utilized to develop new devices, technologies and techniques of constantly broadening application. 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 and through optical fibers, 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 nonlinear networks, bioengineering, lasers, holography, digital communication systems, digital circuits, semiconductor electronics, magnetic bubble memories, computer-aided design, solid-state crystalline and amorphous devices, and energy conversion devices. A more detailed exposition of the research activities of the Department is provided in a descriptive brochure available from the Departmental office. 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.

The Bachelor of Science degree in Electrical and Computer Engineering normally requires completion of 136 semester credits according to the plan described below. In the lower division, defined as the freshman and sophomore years, the student acquires a foundation in the principles of science and mathematics required for the study of engineering. In addition, socio-humanistic studies are provided to ensure a well-rounded education. Basic concepts of electrical circuits, electronics, computers and electromagnetic fields are learned after prerequisite mathematics and science backgrounds are mastered. In the senior year, a choice of about twenty credits of electrical and computer engineering electives permit the student to specialize in one or more areas. These electives are chosen under the guidance of a faculty adviser.* Alternately, the student may elect the Computer Option, in which a planned program of Computer Engineering Courses replaces the electives and a few of the required courses in the regular program.

In addition to the undergraduate program, the Department offers programs culminating in the Master of Science in either electrical engineering or computer engineering or a Doctor of Philosophy degree. (For College of Engineering graduate degree requirements see page 121.) Research is also carried out at the Post-Doctoral level.

Electrical and Computer Engineering Curriculum

Freshman Year

First Semester

	Credits
MAT 201 — Calculus I.....	4
CHM 107 — Principles of Chemistry I.....	4
HIS 195 — Society and the Economic Transition.....	4
Socio-Humanistic Elective.....	3
ECE 100 — Introduction to Electrical and Computer Engineering.....	2
CSC 105 — Computer Science Lab for Engineers.....	1
Total:	18

Second Semester

MAT 202 — Calculus II.....	4
ECE 262 — Introduction to Microcomputers.....	4
PHY 217 — General Physics.....	4-5
HIS 196 — The Impact of Technology.....	4
Total:	16-17

Sophomore Year

First Semester

	Credits
MAT 203 — Calculus III.....	4
PHY 218 — General Physics.....	4-5
M E 240 — Statics.....	3
MET 130 — Science of Engineering Materials.....	4
Total:	15-16

Second Semester

MAT 204 — Calculus IV.....	4
ECE 330 — Introduction to Electrical Circuits.....	3
ENG 305 — Technical Report Writing I.....	3
Science Elective.....	4
Socio-Humanistic Elective.....	3
Total:	17

Junior Year

First Semester

	Credits
ECE 331 — Electrical Circuits I: Laboratory.....	1
ECE 333 — Electrical Circuits II.....	4
ECE 355 — Electronics I.....	4
ECE 480 — Electromagnetic Fields and Waves I.....	4
I E 322 — Probability and Statistics in Engineering.....	3
Engineering Science Elective.....	3
Total:	19

Second Semester

ECE 434 — Electrical Circuits Lab II.....	1
ECE 433 — Linear Network and System Analysis.....	4
ECE 455 — Electronics II.....	4
ECE 356 — Electronics Lab I.....	2
CHE 304 — Computational Methods in Engineering.....	3
Socio-humanistic elective.....	3
Total:	17

Senior Year

First Semester

	Credits
ECE 470 — Introduction to Communication Theory.....	4
ECE 447 — Control Systems I.....	4
Electrical and Computer Engineering Electives.....	8
Total:	16

Second Semester

ENG 306 — Technical Report Writing II.....	3
Electrical and Computer Engineering and Laboratory Electives.....	16-18
TOTAL CREDITS.....	136

Socio-Humanistic Requirements: See page 120 of this bulletin for socio-humanistic requirements. A minimum of seventeen credits of socio-humanistic studies is required. This must include a course in American government and a course in economics, in addition to HIS 195 and HIS 196.

Science Elective: Choose from a department approved list. Substitution of a course not on this list requires approval of the department chairperson or delegated faculty adviser.

Engineering Science Elective: Choose from a department approved list.

Laboratory Requirements: At least eight credits of laboratory courses are required.

Course Material Fee: A ten dollar course material fee is charged for all courses in this department.

Computer Engineering Option

Freshman Year: Same as regular curriculum.

Sophomore Year

First Semester

	Credits
CSC 208 — Computer Concepts for Engineers.....	4
MAT 203 — Calculus III.....	4
PHY 218 — General Physics.....	4-5
MET 130 — Science of Engineering Materials.....	4
Total:	16-17

* Dr. F. E. Brammer is Undergraduate Student Adviser.

Second Semester

MAT 204 — Calculus IV	4
ECE 330 — Introduction to Electrical Circuits.....	3
ENG 305 — Technical Report Writing I	3
Socio-Humanistic Elective	3
M E 240 — Statics.....	3
Total: 16	

Junior Year

First Semester

	<i>credits</i>
ECE 361 — Digital Logic I.....	4
ECE 331 — Electrical Circuits I: Laboratory.....	1
ECE 333 — Electrical Circuits II	4
ECE 355 — Electronics I.....	4
Engineering Science Elective.....	3
CHE 304 — Computational Methods in Engineering.....	3
Total: 19	

Second Semester

ECE 455 — Electronics II.....	4
ECE 356 — Electronics Lab I.....	2
ECE 461 — Digital Logic II.....	4
ECE 468 — Computer Organization.....	4
I E 322 — Probability and Statistics in Engineering.....	3
Total: 17	

Senior Year

First Semester

	<i>Credits</i>
Electrical and Computer Laboratory Elective.....	0-2
ECE 433 — Linear Network and System Analysis.....	4
ECE 562 — Mini and Microcomputers	4
Socio-Humanistic Elective	3
Science Elective.....	4
Total: 15-17	

Second Semester

ENG 306 — Technical Report Writing II.....	3
Computer Engineering Electives	8
ECE 480 — Electromagnetic Fields and Waves I	
<i>or</i>	
ECE 470 — Introduction to Communication Theory.....	4
ECE 563 — Microcomputer Laboratory.....	2
Total: 17	

TOTAL CREDITS..... 136

Socio-Humanistic Requirements: See page 120 of this bulletin for socio-humanistic requirements. A minimum of seventeen credits of socio-humanistic studies is required. This must include a course in American government and a course in economics, in addition to HIS 195 and 196.

Science Elective: Choose from a department approved list. Substitution of a course not on this list requires approval of the department chairperson or delegated faculty adviser.

Engineering Science Elective: Choose from a department approved list.

Laboratory Requirement: Computer engineering students who do not take Physics 217 or 218 laboratories are required to take two credits of elective electrical and computer engineering laboratory courses.

Course Material Fee: A ten dollar course material fee in charged for all courses in this department.

INDUSTRIAL ENGINEERING AND OPERATIONS RESEARCH

Office: 640 Putnam

Chairperson: H. Allan Knappenberger

Associate Chairperson: Herbert G. Ludwig

Professors

Alfred W. Jones, Kailash C. Kapur, H. Allan Knappenberger, Leonard R. Lamberson, Vinod K. Sahney

Associate Professors

Kenneth R. Chelst, Herbert G. Ludwig

Assistant Professors

Yaw Owusu, R. Jean Ruth

Instructor

William S. Marras

Industrial engineers are involved in the design of systems related to producing a product or providing a service. Relevant to this work, industrial is interpreted to include manufacturing, financial, retail, health, governmental and other service industries.

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 or they may involve an entire plant, including the systems to control the production, inventory and quality of complex products.

The skills of the industrial engineer 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 a society at a reasonable cost.

There are many similarities in the academic preparation for various careers in engineering. 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 humans is important. Thus, the industrial engineering curriculum includes courses in human performance. To cope with this increased complexity a special set of mathematical tools and a methodology have emerged in recent years, a body of knowledge labeled operations research, the importance of which to the discipline of industrial engineering, is reflected in the name of this department. The computer has also become a powerful tool in the design, management and control of these complex systems. Consequently, the use of the computer and the design of computer based systems is an important component of many undergraduate and graduate courses. Several options are offered in the undergraduate program including: computers in manufacture, computers in management, manufacturing engineering, and general industrial engineering.

In addition to the undergraduate program, the Department offers a variety of professional and research graduate programs culminating in a Master of Science degree in either industrial engineering or operations research or in a Doctor of Philosophy degree.

Industrial Engineering Curriculum

Freshman Year

First Semester

	Credits
MAT 201 — Calculus I	4
CHM 107 — Principles of Chemistry I	4
HIS 195 — Society and Economic Transition	4
ECO 101 — Principles of Macroeconomics	4
CSC 105 — Computer Science Lab for Engineers	1
Total:	17

Second Semester

MAT 202 — Calculus II	4
PHY 217 — General Physics	4
MET 130 — Science of Engineering Materials	4
HIS 196 — Impact of Technology	4
Total:	16

Sophomore Year

First Semester

	Credits
MAT 203 — Calculus III	4
PHY 218 — General Physics	4
M E 240 — Statics	3
I E 322 — Probability and Statistics in Engineering	3
Science Elective	4
Total:	18

Second Semester

MAT 204 — Calculus IV	4
ENG 305 — Technical Report Writing I	3
ECE 330 — Introduction to Electrical Circuits	3
M E 340 — Dynamics	3
I E 341 — Systems Simulation	4
Total:	17

Junior Year

First Semester

	Credits
ECE 262 — Introduction to Microcomputers	4
Industrial Engineering Option	4
I E 556 — Operations Research I	4
I E 587 — Engineering Economy	4
ECE 331 — Electrical Circuits I: Laboratory	1
Total:	17

Second Semester

ENG 306 — Technical Report Writing II	3
Industrial Engineering Option	4
I E 512 — Work Design and Measurement	4
I E 525 — Engineering Data Analysis	4
CHE 304 — Computational Methods in Engineering	3
Total:	18

Senior Year

First Semester

	Credits
C E 360 — Elementary Mechanics of Materials	3
Industrial Engineering Option	3

I E 531 — Production Control	4
I E 541 — Computer Aided Manufacturing I	4
Socio-Humanistic Elective	3
Total:	17

Second Semester

Industrial Engineering Option	7
CHE 230 — Thermodynamics I	3
I E 533 — Facilities Design	4
Socio-Humanistic Elective	2
Total:	16

TOTAL CREDITS 136

Socio-Humanistic Electives: See page 120 of this bulletin for Socio-Humanistic requirements.

Science Electives: Industrial Engineering students must elect at least *four* credits of science electives. This elective may be specified by the industrial engineering option (see below). Faculty advisers should be consulted for option requirements.

Industrial Engineering Option: Industrial engineering students must elect one of several available options. The current options include: computers in manufacturing, computers in management, manufacturing engineering, and general industrial engineering. The general industrial engineering option includes I E 511, 577, four credits in I E electives and six credits in technical electives. Technical electives include advanced courses in mathematics, science or engineering. Certain courses or sequences of courses in marketing (MKT), accounting (ACC), finance (FBE or ECO), and psychology (PSY) may be taken for a maximum of three credits in technical electives. A faculty adviser should be consulted for the most current list of options and approved technical electives.



MECHANICAL ENGINEERING

Office: 667 Merrick

Chairperson: M. J. Rabins

Associate Chairperson: E. C. Zobel

Professors

S. Carmi, C. N. DeSilva, N. A. Henein, G. H. Howell (Emeritus), R. M. Jamison (Emeritus), A. I. King, K. A. Kline, D. P. Lalas, J. P. Lee, D. L. Perkins (Emeritus), R. A. Piccirelli, M. J. Rabins, G. E. Rivers (Emeritus), E. Rivin, H. K. Sachs, A. B. Whitman

Associate Professors

A. Akay, M. G. Koenig, G. P. Loweke (Emeritus), T. Singh, B. Thompson, E. C. Zobel

Assistant Professor

R. Shoureshi

Instructor

D. Bozek

Adjunct Professors

L. M. Patrick, E. M. Petrick, E. A. Saibel

Adjunct Associate Professors

F. Einaudi, R. S. Levine

The opportunities and challenges in the field of mechanical engineering are diverse and virtually unlimited. The broad variety of career possibilities includes research and development, design analysis and synthesis, manufacturing and production engineering, testing, sales engineering, maintenance and administration. The challenge of a mechanical engineer may lie 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 design. To prepare undergraduate students for these opportunities, the Wayne State University Mechanical Engineering curriculum is designed to give a basic core education in the humanities, mathematics, natural sciences, basic applied sciences, engineering fundamentals, and to provide advanced electives in many applied fields.

These fields include such important areas as biomechanics, energy conversion, combustion engines, emissions controls, solar energy, computer graphics, structural analysis, automatic controls, vehicle dynamics and design, continuum mechanics, fluid dynamics, environmental design, mechanisms, acoustics and noise control, and optimum mechanical design. Faculty members in the Department are currently engaged in state-of-the-art research and teaching in all of these areas.

Degree Programs

The Department offers a Bachelor of Science in Mechanical Engineering which is accredited by the Engineering Council for Professional Development.

All entering freshmen are initially advised by the Associate Chairperson of the Department. Subsequently, at the end of the sophomore year the student may be assigned a different Department faculty member as an adviser for the last two years. The student and

adviser together plan a complete program of study, including electives, which meets departmental requirements and the interests of the individual student. Two of the technical electives must be chosen from among the 500 level courses offered by the Mechanical Engineering Department. These may include advanced (second) courses in strength of materials, fluid mechanics, approximate methods of analysis, automatic controls, or vibrations; or they may build on prior sequences such as thermodynamics and heat transfer or mechanical design and mechanisms; or they may be in new directions such as acoustics, computer graphics, biomechanics, engine combustion, vehicle design, atmospheric fluid dynamics or directed study and research in an area of mutual interest to the student and a faculty member. The third technical elective may be taken in any department in the College of Engineering and may be at any level including introductory courses such as ECE 262, Introduction to Microcomputers, in the Electrical and Computer Engineering department.

Part-time study (with most courses offered in the evening) and cooperative programs allow professionals working in local industry to pursue undergraduate and graduate degrees while continuing employment. A number of graduate courses are offered at off-campus locations and may be taken on a credit or non-credit basis.

The Department also offers graduate programs leading to Master of Science in Mechanical Engineering and Doctor of Philosophy degrees. Please see page 123 for further information.

Mechanical Engineering Curriculum

Freshman Year

First Semester

	Credits
MAT 201 - Calculus I	4
CHM 107 - Principles of Chemistry I	4
HIS 195 - Society and the Economic Transition	4
CSC 105 - Computer Science Laboratory for Engineers	1
M E 114 - Engineering Graphics I	2
Socio-Humanistic Elective	3
Total:	18

Second Semester

MAT 202 - Calculus II	4
PHY 217 - General Physics	4
HIS 196 - The Impact of Technology	4
MET 130 - Science of Engineering Materials	4
M E 100 - Introduction to Mechanical Engineering	2
Total:	18

Sophomore Year

First Semester

	Credits
ENG 305 - Technical Report Writing I	3
MAT 203 - Calculus III	4
PHY 218 - General Physics	4
M E 240 - Statics	3
I E 322 - Probability and Statistics in Engineering	3
Total:	17

Second Semester

M E 360 - Elementary Mechanics of Materials	3
MAT 204 - Calculus IV	4
M E 340 - Dynamics	3
M E 220 - Thermodynamics I	3
ECE 330 - Introduction to Electrical Circuits	3
Total:	16

Junior Year

First Semester

	<i>Credits</i>
ECE 331 — Electrical Circuits I: Lab	1
M E 345 — Manufacturing Processes	4
M E 330 — Fluid Mechanics	4
M E 320 — Thermodynamics II	3
M E 341 — Vibrations I	4
CHE 304 — Computational Methods in Engineering	3
Total:	19

Second Semester

M E 348 — Design of Machine Elements	4
M E 491 — Data Analysis Laboratory	2
M E 440 — Analysis and Control of Dynamic Systems	4
ENG 306 — Technical Report Writing II	3
ECO 101 — Principles of Macroeconomics	4
Total:	17

Senior Year

First Semester

	<i>Credits</i>
M E 445 — Mechanical Engineering Design I	4
M E 493 — Mechanical Systems and Test Planning Lab	2
M E 420 — Heat Transfer	3
Socio-Humanistic Elective	2
Technical Elective	4
Total:	15

Second Semester

ME 450 — Mechanical Engineering Design II	4
Science Elective	4
Technical Electives	8
Total:	16

TOTAL CREDITS 136

Technical Electives: Technical electives are restricted to courses in the College of Engineering and at least two must be selected from the Mechanical Engineering Department at the 500 level.

Science electives: Mechanical Engineering students must elect at least four credits from the following list of science electives: Biology 101, Biology 187, Chemistry 108, Geology 101, Geology 102, Physics 330.

Socio-Humanistic Electives: See page 120 of this bulletin for Socio-Humanistic requirements.

METALLURGICAL ENGINEERING

Office: 128 Engineering Building

Chairperson: R. H. Kummler

Associate Chairperson: W. L. Haworth

Professors

C. L. Corey, L. Himmel, P. K. Rol

Associate Professor

W. L. Haworth

Assistant Professor

C. Gandhi

Adjunct Professors

J. J. Harwood, E. Kennedy

Materials problems constitute an important area of research and development in the complex technology of our industrial society. Power generation by nuclear reactors or solar cells, lighter and more crash-resistant automobiles, electronic device miniaturization, and 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. Metallurgical engineers must master the science that enables them to understand the behavior of metals and materials, their mechanical, optical, thermal, electrical and chemical properties and the internal structure that determines these properties. They can then apply their 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 students to follow their particular interests in detail, and a senior research and seminar sequence provides the opportunity for independent work with appropriate faculty guidance.

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 Semester

	<i>Credits</i>
MAT 201 — Calculus I	4
CHM 107 — Principles of Chemistry I	4
HIS 195 — Society and the Economic Transition	4
CSC 105 — Computer Science Laboratory	1
P S 103 — The American Governmental System	3
Total:	16

Second Semester

MAT 202 — Calculus II.....	4
PHY 217 — General Physics.....	4
HIS 196 — The Impact of Technology.....	4
CHM 108 — Principles of Chemistry II.....	5
Total:	17

Sophomore Year

First Semester

Credits

MAT 203 — Calculus III.....	4
PHY 218 — General Physics.....	4
MET 130 — Science of Engineering Materials.....	4
I E 322 — Probability and Statistics in Engineering.....	3
M E 240 — Statics.....	3
Total:	18

Second Semester

MAT 204 — Calculus IV.....	4
CHE 230 — Thermodynamics I.....	3
CHE 280 — Material and Energy Balances.....	3
MET 260 — Introduction to Metallurgical Engineering.....	3
Socio-Humanistic Elective.....	3
Total:	16

Junior Year

First Semester

Credits

ENG 305 — Technical Report Writing I.....	3
MET 330 — Metallurgical Thermodynamics.....	3
MET 340 — Physical Metallurgy I.....	4
MET 342 — Physical Metallurgy Laboratory I.....	1
C E 360 — Elementary Mechanics of Materials.....	3
CHE 304 — Computational Methods.....	3
Total:	17

Second Semester

ENG 306 — Technical Report Writing II.....	3
MET 360 — Physical Metallurgy II.....	3
MET 362 — Physical Metallurgy Laboratory II.....	1
MET 370 — Mechanical Behavior of Metals.....	3
ECE 330 — Introduction to Electrical Circuits.....	3
Technical Elective.....	3
Total:	16

Senior Year

First Semester

Credits

MET 400 — Modern Methods of Structural Analysis.....	3
MET 430 — Processing and Fabrication of Metals.....	3
MET 426 — Senior Project I.....	2
Technical Electives.....	7
Socio-Humanistic Elective.....	3
Total:	18

Second Semester

CHE 320 — Chemical Process Engineering I.....	4
ECE 331 — Electrical Circuits I: Laboratory.....	1
MET 450 — Materials Selection and Design.....	3
MET 460 — Principles of Extractive Metallurgy.....	3
MET 486 — Senior Project II.....	2
Technical Electives.....	5
Total:	18

TOTAL CREDITS..... 136

Socio-Humanistic Electives: See page 120 of this bulletin for Socio-Humanistic requirements.

Technical Electives: Consult with the departmental adviser.



COURSES OF INSTRUCTION¹

DIVISION OF ENGINEERING

Basic Engineering (B E)

100. Introduction to the Profession of Engineering. (Lct: 4). Cr. 2

Required of all entering undecided engineering freshmen. An introduction to the profession of engineering. The engineering method and computation procedures. Problems, papers including a term paper required.

250. Engineering Internship. (Ind: 1). Cr. 1(Max. 6)

Prereq: sophomore standing and consent of adviser. Offered for S and U grades only. Engineering practice under supervision in cooperative education work-study program. Report required.

350. Engineering Internship Record. Cr. 0

Prereq: sophomore standing and consent of coordinator. Offered for S and U grades only. Engineering practice under supervision in cooperative education program.

Chemical Engineering (CHE)

Required Undergraduate Courses

A grade of C is the minimum acceptable for these required courses. Continuation in sequence courses after receipt of a D may be authorized only by the department chairperson.

230. Thermodynamics I. Cr. 3

Prereq: MAT 202 and PHY 217. An introduction to the first and second laws of thermodynamics. Conversion between internal, chemical and mechanical energies.

280. Material and Energy Balances. Cr. 3

Prereq: PHY 217 and CHM 108. Material balances, stoichiometry and simultaneous mass energy balances.

304. Computational Methods in Engineering. Cr. 3

Prereq: CSC 105; coreq: MAT 204. Material fee as indicated in *Schedule of Classes*. An introductory course in the application of digital computers and numerical techniques to the solution of engineering problems. Methods for solving linear and non-linear algebraic equations, estimating the accuracy of results, and numerical integration in more than one variable. Finite difference techniques for the solution of ordinary differential equations and extended to the mesh methods for solution of partial differential equations.

320. Chemical Process Engineering I: Fluid Flow and Heat Transfer. Cr. 4

Prereq: MAT 204, CHE 280. Transient and steady state transport of momentum in engineering systems. Analytical and empirical methods. Practical aspects of transport of materials and heat. Piping and pumping systems, metering, heat exchange theory, equipment costs.

322. Measurements Laboratory. Cr. 2

Coreq: CHE 320, ENG 305. Material fee as indicated in *Schedule of Classes*. Laboratory course in the principles and practice of measuring chemical, physical and thermodynamic properties of importance to chemical engineering problems. Technical reports.

330. Thermodynamics II: Chemical Equilibria. Cr. 3

Prereq: CHE 230, 280. 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.

340. Kinetics and Reactor Design. Cr. 3

Prereq: CHE 330, CHM 532, MAT 204. Quantitative treatment of complex homogeneous and heterogeneous chemical reactions and the design of batch, stirred and flow reactor systems.

350. Heat Transfer. Cr. 2

Prereq: CHE 320. Practical aspects of transport of heat by conduction, convection, and radiation. Heat exchange theory equipment costs.

351. Co-op Experience. Cr. 1

Presentation of oral and written report to peer group describing Co-op experience. Attendance required at CHE and MET seminar series for the semester.

380. Chemical Process Engineering II: Mass Transfer. Cr. 4

Prereq: CHE 320. Quantitative treatment of separation processes in which there is simultaneous heat and mass transfer.

382. Chemical Engineering Laboratory. Cr. 2

Prereq: ENG 305; coreq: CHE 380. Material fee as indicated in *Schedule of Classes*. Experimental study of chemical equilibria, reaction kinetics and rate processes. Laboratory case studies.

386. Chemical Engineering Seminar I. Cr. 0

Prereq: consent of chairperson. Required for graduation.

420. Chemical Process Engineering III: Economics and Design. Cr. 3

Prereq: CHE 380 and 340. The overall chemical process. Economic analysis of the process and the optimum-economic design of process.

426. Chemical Engineering Seminar II. Cr. 0

Prereq: CHE 386. Required for graduation.

456. Chemical Engineering Senior Research. Cr. 4-6

Prereq: CHE 386; coreq: 426. Research project.

460. Process Dynamics and Simulation. Cr. 3

Prereq: CHE 304, 340, 380. Application of system dynamics and mathematical modeling to design and analysis of chemical processing systems.

480. Chemical Process Integration. Cr. 3

Prereq: CHE 420. Application of engineering and science background to the design of chemical processes. Comprehensive problems deal with sources of data, design principles and optimization techniques.

486. Chemical Engineering Seminar III. Cr. 1

Prereq: CHE 426. Required for graduation.

Undergraduate Elective Courses

490. Directed Study. Cr. 1-9(Max. 9)

Prereq: consent of chairperson. Students select a field of chemical engineering for advanced study and instruction.

¹ See page 633 for interpretation of numbering system, signs and abbreviations.

Undergraduate and Graduate Elective Courses

504. (ECE 504) Numerical Methods for Engineers. Cr. 4

Prereq: MAT 204, CHE 304. Solution of ordinary and partial differential equations of engineering by modern numerical methods, including digital computer programming.

509. (MET 509) Physical Ceramics. Cr. 3

Prereq: MET 260 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.

520. Transport Phenomena. Cr. 3

Prereq: senior standing or consent of instructor. Unified principles of heat mass and momentum transport with application to applied science and engineering problem areas.

522. (M E 522) Properties of Fluid Materials. Cr. 2

Prereq: senior standing. Development of formulas and correlations for estimating thermodynamics and transport properties of fluids in terms of atomic and molecular properties. Energy distribution and mean free path concepts are introduced and applied for this purpose.

524. (M E 524) Industrial Combustion Systems. Cr. 3

Prereq: M E 420 or CHE 350 or consent of instructor. Introduction to operating principles and design features of modern boilers, furnaces, gas turbine combustors and advanced continuous combustion systems. Application of basic thermodynamic and heat transfer calculations to testing and design.

525. Energy: Resources and Technology. Cr. 4

Prereq: consent of instructor. Material fee as indicated in *Schedule of Classes*. 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.

532. (OEH 732) Chemistry of Industrial Processes. Cr. 3

The mechanical and theoretical similarities of various kinds of process equipment are studied with respect to the OSHA and EPA standards of measurement of worker exposure. Emphasis is placed on the operation of actual processes components with respect to the likelihood of mechanical failure.

533. (M E 533) Applied Polymer Rheology. Cr. 4

Prereq: CHE 320, 535. Flow properties of polymer solutions; methods of measuring fundamental rheological parameters using viscometric devices; the prediction of material properties from theoretical principles. Correlation between theoretical and experimental results.

535. Polymer Engineering I. (MET 535). Cr. 2

Prereq. or coreq: MAT 204. 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.

537. Polymer Engineering Laboratory. (MET 537). Cr. 1

Prereq. or coreq: CHE 535. 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.

540. Molecular Energy Transfer and Reaction Dynamics. Cr. 2

Prereq: CHE 340 or CHM 544. Introductory concepts: language and phenomena in molecular processes.

550. Heat Pipes. Cr. 3

Prereq: CHE 320, 380 or equiv. Material fee as indicated in *Schedule of Classes*. Theory, design, construct working models of these recently developed and operation of heat pipes. Basic principles of heat transfer and fluid flow will be used to optimize design; brazing and vacuum techniques will be used to construct self-contained devices of extremely high thermal conductance.

552. (OEH 720) Air Sampling and Analysis. Cr. 3

Classical methods of obtaining samples of the air, recent developments in the field of portable direct reading devices. Theory underlying the use of impingers, impactors, electrostatic and thermal precipitators, filtration media and other sampling devices.

555. Environmental Science I: Introduction to Air Pollution. (OEH 705). Cr. 3

Prereq: CHE 230 and MAT 204. 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.

560. (MET 560) Composite Materials. Cr. 3

Principles and applications of high strength composite materials, with particular emphasis on fiber-reinforced metals and plastics. Design of reinforced materials to replace conventional metals and alloys.

561. (MET 561) Science of Materials. Cr. 3

Prereq: PHY 218 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.

565. Particulate Systems. Cr. 2

Prereq: CHE 380. A study of particles including fixed and fluidized bed systems. Particle characterization: momentum and heat transport in solid liquid systems. Design applications.

566. Multicomponent Separation Processes. Cr. 2

Principles involved in separation of multicomponent mixtures, mathematical simulation, design of units. Primary emphasis on distillation.

575. Flammability of Polymeric Materials. Cr. 2

Prereq: senior standing. The study of decomposition, ablation and combustion processes; the kinetics and simultaneous heat and mass transfer occurring during these processes.

580. Computer-aided Design of Separation Processes. Cr. 2

Prereq: CHE 304 and 380. Application of computer programs to design chemical process operations. Problems include stagewise and continuous operations.

584. Chemical Methods for Air Pollution Control. Cr. 2

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.

585. Vacuum Technology. (MET 585). Cr. 2

Prereq: PHY 218 or consent of instructor. Vacuum techniques, flow of gases through tubes and orifices, operation of pumps and manometers, vacuum materials, vacuum systems.

586. Elements of Nuclear Engineering. (M E 586) (MET 586). Cr. 3

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 such as fast breeder are discussed.

595. Special Topics in Chemical Engineering I. Cr. 1-4

Prereq: consent of chairperson. Maximum of six credits of Special Topics in any one degree program. A consideration of special subject matter in chemical engineering. Topics to be announced in *Schedule of Classes*.

613. (FAC 413) Food Preservation. (FAC 713). Cr. 3 or 4

Prereq: senior standing. Material fee as indicated in *Schedule of Classes*. Basic food preservation methods and the underlying physical, chemical, bacteriological and organoleptic properties of foods to be preserved.

625. Advanced Process Dynamics and Simulation. Cr. 2

Prereq: CHE 460. Adaptation of the principles of process analysis and simulation to complex chemical processing systems. Discussion of topics related to process computer control.

635. Polymer Engineering II. (MET 635). Cr. 2

Prereq: MAT 204. A detailed analysis of polymer processing. Rheology of polymers, flow in tubes, calendaring, extrusion, injection molding, surface phenomena and polymer crystallization.

645. Biochemical Engineering. Cr. 2

Prereq: consent of chairperson. An introductory study of the principles of chemical engineering, biochemistry and biology which are essential for the design of industrial systems involving biological transformations.

655. Strategy of Process Engineering. Cr. 2

Prereq: consent of chairperson. Economic evaluation of chemical, metallurgical and petroleum processes and methods for determining the optimal conditions for their operation.

660. Fusion Engineering. (ME 660). Cr. 2

Prereq: consent of instructor. Introduction to physical processes involved in nuclear fusion. Magnetically confined plasmas and laser induced fusion. Current status and economics.

665. Electrochemical Engineering. (MET 665). Cr. 2

Prereq: CHM 544, CHM 380 and CHE 340. 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.

675. Heterogeneous Equilibria. (MET 675). Cr. 2

Prereq: CHE 330. An intermediate study of the phase diagrams of the importance in chemical and metallurgical engineering and of the principles involved in such equilibria.

685. (MET 685) 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.

710. Advanced Engineering Mathematics. (MET 710).^{*} Cr. 3

Prereq: MAT 204 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.

720. Advanced Transport Phenomena I. Cr. 4

Prereq: CHE 710 or equiv. Basic properties of heat, mass and momentum transfer systems; fundamental equations, formulation and solution of boundary value problems.

724. (M E 724) Processes in Continuous Combustion Systems. Cr. 4

Prereq: M E 524 or CHE 524 or consent of instructor. Introduction to the physical processes in steady, burner-supported flames in furnaces, open burners and combustors. Premixed and diffusion type, laminar and turbulent type flames for all fuel types will be treated; some models will be developed.

730. Advanced Thermodynamics. Cr. 3

Prereq: CHE 330 or consent of chairperson. Principles of thermodynamics with emphasis on application of the auxiliary functions to chemical equilibria of fluid states.

740. Advanced Kinetics and Reactor Design. Cr. 4

Prereq: CHE 230 and 340 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.

Elective Graduate Courses

760. Chemical Process Dynamics Stability and Control. Cr. 3

Prereq: CHE 460 and 710. Advanced and theoretical topics in the unsteady behavior and control of chemical processes. Classical stability and control methods; Lyapunov and state space methods.

770. Phase Equilibrium Thermodynamics. Cr. 2

Prereq: CHE 730. Applications of thermodynamic principles to phase equilibrium problems encountered in design practice.

780. Separation Processes. Cr. 3

Prereq: CHE 380. Principles involved in the separation of chemical mixtures. Mathematical modeling and application to design problems.

790. Directed Study. Cr. 1-9

Prereq: written consent of adviser, chairperson and engineering graduate officer for master's students; written consent of adviser, chairperson and Dean of Graduate Studies for Ph.D. students. Library investigation of an approved project in chemical engineering. Independent study, conferences with supervisor and preparation of a comprehensive written and oral report.

795. Special Topics in Chemical Engineering II. Cr. 1-4

Prereq: consent of chairperson. Maximum of six credits in Special Topics in any one degree program. A consideration of special subject matter in chemical engineering. Topics to be announced in *Schedule of Classes*.

809. (MET 809) Advanced Ceramics. Cr. 2

Prereq: CHE 509 or MET 509. Advanced and theoretical topics in non-metallic materials. Topics in sintering and pressing, sintering in the presence of a liquid phase, structure of ceramics.

811. Energy Transfer Processes. Cr. 3

Prereq: CHE 710 or equiv. An advanced presentation of the microscopic modeling of energy transfer processes. Examples drawn from vibrational relaxation, molecular lasers and advanced combustion processes.

815. Advanced Nuclear Engineering. (MET 815). Cr. 2

Prereq: CHE 586 or MET 586 or consent of chairperson. 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.

820. Advanced Transport Phenomena II. Cr. 3

Prereq: CHE 720. Coupled transport phenomena in engineering systems; simultaneous fluid flow with heat and mass transfer, transport in multiphase systems and review of correlation methods.

822. (M E 822) Advanced Molecular Theory of Fluids. Cr. 4

Prereq: M E 722 or CHE 522 and CHE 720 or consent of instructor. Kinetic equation descriptions of non-reacting gases, fuel sprays, plasmas, aerosols and dusts are developed. Special results such as transport coefficients for gases and plasmas, slip flow solutions and flame speeds are obtained. The relationship between the kinetic equations and macroscopic descriptions of transport processes is given.

835. Polymer Engineering III. (MET 835). Cr. 2

Prereq: CHE 535 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.

840. Advanced Kinetics. Cr. 3

Prereq: CHE 740. 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.

845. Plant Design. Cr. 2

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.

850. Graduate Engineering Internship. Cr. 0

Offered for S and U grades only. Engineering practice under supervision in cooperative education program.

851. Graduate Co-op Experience. Cr. 1

Presentation of oral and written reports to peer group describing co-op experience.

855. Crystallization. Cr. 2

Prereq: CHE 720. Principles of crystallization and heterogeneous equilibria applied to evaporation and crystallization.

870. Heterogeneous Flow Systems. Cr. 2

Prereq: CHE 720. 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.

896. Research. Cr. 1-9 (Max. 30)

Prereq: consent of chairperson 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.

899. Master's Thesis Research and Direction. Cr. 1-3

Prereq: consent of adviser.

998. 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.

999. Doctoral Dissertation Research and Direction. Cr. 1-16

Prereq: consent of chairperson of departmental graduate committee. No more than ten credits may be elected before doctoral candidacy is obtained. Offered for S and U grades only.

Civil Engineering (C E)

101. Introduction to Civil Engineering. Cr. 1

Offered for S and U grades only. History of civil engineering; major areas of specialization within civil engineering introduced. Required readings and term paper; guest speakers.

240. (M E 360) Statics. Cr. 3

Prereq: MAT 202 and PHY 217. Basic concepts and principles of statics with application of Newton's Laws of Motion to engineering problems. Forces, moments, equilibrium, couples, free-body diagrams, trusses, frames, fluid statics, centroids, friction and area and mass moments of inertia.

307. Surveying I. (Lct: 2; Lab: 3). Cr. 3

Prereq: consent of instructor. Principles of plane surveying; measurement of horizontal and vertical distance, directions and angles; traverses, areas.

308. Surveying II. (Lct: 2; Lab: 3). Cr. 3

Prereq: C E 307. Route surveys, parabolic and circular curves, topography, construction surveys, public land.

325. Applied Fluid Mechanics. Cr. 3

Prereq: MAT 203. Experimental verification of theories of fluid mechanics as encountered in civil engineering problems. Specific problems include hydraulics of pipe flow, open channel flow, pumps and pumping stations, flow under a sheet pile and one-dimensional consolidation. Demonstration labs for flow measurements.

360. (M E 240) Elementary Mechanics of Materials. Cr. 3

Prereq: M E 240. Elastic and inelastic relationships between external forces acting on deformable bodies and the associated stresses and deformations; structural members subjected to axial load, torsion, and bending; column buckling; combined stresses; repeated loads; unsymmetrical bending.

401. Civil Engineering Analysis. Cr. 3

Prereq: MAT 204; prereq. or coreq: CHE 304. Numerical methods applied to linear systems; matrix techniques, linear programming, linear regression; finite difference techniques applied to partial differential equations.

421. Water Resources. Cr. 3

Prereq: C E 325. Water supply, surface and ground water sources, treatment and distribution; water quality, chemical, bacteriological and microscopic; financing and economics of utilities.

422. Environmental Engineering. Cr. 3

Prereq: C E 421. Waste water, collection, treatment and disposal; waste water characteristics; stream sanitation.

430. Structures I. Cr. 2

Prereq: M E 240 or C E 240. Mechanics of engineering structures. Equilibrium analysis and deformations of trusses and beams. Computer applications.

431. Structures II. Cr. 3

Prereq: C E 430 and 360 or M E 360. Analysis of structural systems. Force and displacement methods, deflections, reciprocal relations and influence lines. Introduction to plastic analysis. Computer applications.

435. Steel Design. Cr. 3

Prereq: C E 430 and 360 or M E 360. Behavior and design of structural steel elements. Tension, compression and flexural members, connections.

436. Reinforced Concrete I. Cr. 3

Prereq: C E 431. 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.

445. Civil Engineering Materials. (Lct: 2; Lab: 3). Cr. 3

Prereq. or coreq: MET 130, M E 240 or C E 240. Material fee as indicated in *Schedule of Classes*. Structure; composition; physical, mechanical and rheological properties of steel, concrete, asphalt, wood, plastic and soil. Manufacturing and quality control of concrete and asphalt.

451. Introduction to Geotechnical Engineering. (Lct: 3; Lab: 3). Cr. 4

Prereq. or coreq: C E 445 and 325. Material fee as indicated in *Schedule of Classes*. Composition, engineering properties and behavior of soils. Principles of soil mechanics. Experimental determination of engineering classification, strength and deformation characteristics of natural and artificially placed soils.

460. Transportation Engineering. Cr. 4

Prereq: C E 401. Transportation functions; transportation systems including highways, railways and airways. Techniques of transportation systems analysis including optimization, network flows and queueing theory.

464. Transportation Design. Cr. 4

Prereq: C E 460 or consent of instructor. A description of design elements of various system components of transportation; including the driver, vehicle and roadway. Traffic flow design elements including volume, density and speed; intersection design elements including delay, capacity and accident countermeasures and terminal design elements including inflow, outflow and circulation.

485. Engineering Economy and Decision Theory in Civil Engineering Systems. Cr. 3

Prereq: I E 322. Analysis and evaluation of economic alternatives: interest factors, risks and uncertainties in decision problems; value of perfect and imperfect information in decision making, portfolio investments, utility theory in risk analysis and inventory control under certain and uncertain demand.

490. Directed Study. Cr. 1-4(Max. 6)

Prereq: consent of chairperson. Supervised study and instruction in civil engineering. Written report required.

497. Seminar in Civil Engineering. Cr. 1-2

Prereq: senior standing. Discussion and reports on current topics in the field of civil engineering.

514. Refuse Collection and Disposal. Cr. 4

Prereq: consent of instructor. Statistics, fundamentals in the planning of refuse collection systems. Legal, economic and public health consideration. Disposing of solid wastes. Selecting disposal methods, sanitary landfills, incineration, composting, compression and salvage of refuse.

522. Sanitary Chemistry. Cr. 3

Prereq: C E 421 or consent of instructor. Fundamentals of chemical principles and their application to unit operations and process encountered in the treatment of water and waste water.

525. Sanitary Engineering Laboratory. (Lct: 2; Lab: 4). Cr. 3

Prereq: C E 421 or consent of instructor. Material fee as indicated in *Schedule of Classes*. 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.

528. Sanitary Engineering Design. Cr. 3

Prereq: C E 422. Design principles of water and waste water treatment plants. Plant layouts and the design of elements of the plant.

551. Foundation Engineering. Cr. 3

Prereq: C E 451. Site investigation: exploration, sampling and testing techniques. Site preparation: compaction, dewatering. Design of shallow and deep foundations: bearing capacity and settlements.

552. Earth Retaining Systems. Cr. 3

Prereq: C E 551 or consent of instructor. Application of soil mechanics principles to the analysis, design and construction of unbraced and braced excavations, bulkheads, retaining walls and earth slopes.

580. Legal and Ethical Aspects of Engineering. Cr. 2

Open only to seniors and graduate students. The relation of the engineer to society, national codes of practice, ethics, law of contracts, agency, negotiable instruments and sales.

581. Legal Aspects of Engineering Problems. Cr. 3

Open only to seniors and graduate students. Business of contracting, construction, liabilities of owner, architect, engineer and contractor. Rights in land, boundaries and foundations. Case studies.

582. Legal Aspects of Transportation. Cr. 2

Open only to seniors and graduate students. 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.

595. Special Topics in Civil Engineering I. Cr. 1-4(Max. 4)

Prereq: consent of chairperson. Maximum of four credits in Special Topics in any one degree program. Topics to be announced in *Schedule of Classes*.

601. Construction Organization and Management. Cr. 3

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.

613. Engineering Hydraulics. Cr. 3

Prereq: C E 325 or equiv. Fluid mechanics applied to engineering problems. Dimensional analysis and similitude. Open channel flow, non-uniform flow and hydraulic structures.

614. Geometric Design of Highways. Cr. 2

Prereq: C E 464 or consent of instructor. Determination of design elements of highways; including geometric design, drainage and roadside developments; construction and maintenance of highway systems.

615. Hydrology. Cr. 3

Prereq: C E 613. 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.

622. Advanced Sanitary Chemistry. Cr. 3

Prereq: C E 522 or consent of instructor. The characteristics of water pollutants and the principles and operations of modern instruments employed in water and wastewater analysis.

629. Environmental Systems Engineering for Public Works. Cr. 3

Prereq: C E 422 or consent of instructor. Designed to provide a

description of various system elements of environmental engineering with particular emphasis on water supply systems, waste water, sewer systems, and solid wastes.

633. Advanced Structural Analysis. Cr. 3

Prereq: C E 431 or consent of instructor. 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.

637. Reinforced Concrete II. Cr. 3

Prereq: C E 436 or consent of instructor. Theory and design of two-way and flat slabs, yield line theory, footings and retaining walls, composite beams, box girders.

638. Prestressed and Precast Concrete. Cr. 3

Prereq: C E 436 or consent of instructor. Principles of prestressing and precasting concrete. Design and analysis of statically determinate and indeterminate prestressed concrete members.

641. Building Systems. (Lct: 1; Lab: 3). Cr. 2

Prereq: C E 435 and 436 or consent of instructor. Building design project in steel or concrete.

651. Soft Ground Tunneling. Cr. 2

Prereq: C E 552 or consent of instructor. Analysis, design and construction of soft ground tunnels.

652. Earth Dams. Cr. 2

Prereq: C E 552. Design, analysis and construction of earth dams, rockfill dams and sheetpile cofferdams. Effects and control of seepage. Introduction to tailings dams.

653. Experimental Techniques in Geotechnical Engineering. Cr. 2

Prereq: C E 451. Theoretical background, critical examination, interpretation and comparison of laboratory and *in situ* techniques for determining soil stratigraphy, permeability, strength and deformation characteristics.

663. (I E 663) Introduction to Transportation Science. Cr. 3

Prereq: I E 577 or C E 464 or consent of instructor. Theoretical developments in operations research for describing traffic flow for highway, railway and advanced automated systems of ground transport.

689. Data Requirements for Public Works Management. Cr. 3

Prereq: I E 645 or consent of instructor. Development of a comprehensive information system relating to the management of public works and municipal engineering.

701. Civil Engineering Decision Processes. Cr. 3

Prereq: I E 322 or consent of instructor. Application of probability, statistics and decision processes to civil engineering problems.

702. Analytical Methods in Design and Construction Systems. Cr. 2

Prereq: consent of instructor. Analytical and quantitative methods useful for the organization, management, operation and control of design and construction systems. Linear programming, waiting line theory and optimization techniques. Computer programming and applications.

703. Estimation and Bidding Theory. Cr. 2

Prereq: C E 701. Estimation and bidding methods and procedures. Strategies for estimating and bidding in competitive environments. The economic effects of the methods of estimating and bidding.

704. Scheduling and Control Theory. Cr. 3

Prereq: C E 701 and 702 or consent of instructor. Network theory; scheduling of project operations; time computations, and resource

allocation. The PERT model; the CPM model; and the QUEUING model. A cost control and accounting model for project management.

705. Data Processing in Construction and Design Systems. Cr. 2

Prereq: C E 704. 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.

706. Projects in Construction and Design Systems. Cr. 3

Prereq: C E 704. 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.

710. Water Resources Management. Cr. 3

Prereq: advanced statistics and consent of instructor. Water resource and planning. Application of probability and operation research techniques for planning of water resources including engineering analysis, economic objective and water resource principles.

720. Environmental Engineering Operations and Processes I. Cr. 3

Prereq: C E 421. Theoretical aspects and applications of various operations and processes of importance in pollution and control including sedimentation, flotation, coagulation, softening and filtration through granular media.

721. Environmental Engineering Operations and Processes II. Cr. 3

Prereq: C E 720. A continuation of C E 720 with concentration on secondary and tertiary treatment processes and theoretical considerations in absorption, disinfection, and other processes.

722. Industrial Waste Treatment. Cr. 3

Prereq: C E 721 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.

725. Advanced Sanitary Engineering Laboratory. (Lct: 2; Lab: 4). Cr. 3

Prereq: C E 525. Material fee as indicated in *Schedule of Classes*. 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.

726. Stream Sanitation. Cr. 3

Prereq: C E 525 and 721 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.

729. Environmental Impact Assessment for Public Works. Cr. 3

Prereq: graduate standing and consent of instructor. Designed for civil engineers specializing in public works management. Techniques, requirements, and constraints associated with the preparation of environmental impact programs as currently required for federally funded projects.

730. Structural Mechanics I. Cr. 3

Prereq. or coreq: C E 633. Theory of bending and torsion of bars, beams on elastic foundations. Introduction to theory of thin plates.

731. Structural Mechanics II. Cr. 2

Prereq: C E 730. Continuation of C E 730. Theory of thin plates. Stability of bars, plates, and civil engineering structures.

- 732. Statically Indeterminate Structures I. Cr. 2**
Prereq: C E 633 or consent of instructor. Applications of structural analysis algorithms in matrix form to the analysis and design of long span bridges and multi-story buildings. Coordinate transformation; analysis by substructures and by recursion; computer use.
- 733. Statically Indeterminate Structures II. Cr. 2**
Prereq: C E 732. Analysis of non-linear structures. Matrix analysis. Non-linear materials, large deflection theory.
- 734. Analysis and Design of Shell Structures. Cr. 4**
Prereq: consent of instructor. Analysis and design of folded plate structures and structures composed of shells of single and double curvature.
- 735. Behavior of Structures Under Dynamic Loads. Cr. 3**
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.
- 736. Random Vibration of Structures. Cr. 2**
Prereq: C E 735 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.
- 737. Finite Methods of Structural Analysis. Cr. 3**
Prereq: consent of instructor. Matrix analysis, force and displacement methods; finite element approach with applications; finite difference analysis and applications.
- 739. Plastic Analysis and Design of Steel Structures. Cr. 3**
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.
- 740. Optimization of Structural Designs. Cr. 2**
Prereq: consent of instructor. Optimization techniques applied to design of structural systems.
- 751. Soil-Structure Interaction. Cr. 3**
Prereq: C E 532 or consent of instructor. Analysis of effects of interaction between structural elements and surrounding soil. Beams on elastic foundation; lateral and pullout capacity of piles; pile group behavior; loads on flexible tunnel linings.
- 752. Vibrations in Geotechnical Engineering. Cr. 3**
Prereq: M E 340 or consent of instructor. Pile driving by wave equation analysis; design of machine foundations; effects of pile driving, blasting and earthquakes.
- 753. Soil Behavior. Cr. 3**
Prereq: consent of instructor. Investigation of the theories of shear strength and deformation characteristics of saturated and partly saturated soils. Effects of physico-chemical properties.
- 760. Highway Safety Analysis. Cr. 2**
Prereq: C E 464 or consent of instructor. Safety aspects of highways; emphasis on design, implementation and evaluation of highway safety measures.
- 761. Design and Analysis of Highway Signal Systems. Cr. 2**
Prereq: C E 464. A description of various signal systems, including operating conditions, design elements, evaluation techniques, statistical analysis, administration.
- 762. Traffic Engineering Control and Operation. Cr. 2**
Prereq: C E 761. Traffic control theory and application. Traffic regulation rationales, laws and ordinances; speed control, intersection control, flow control, parking control.
- 763. Urban Transportation Planning. Cr. 3**
Prereq: C E 460 or consent of instructor. Analyses of urban transportation characteristics and studies. System demand and 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.
- 764. Economic Analysis in Transportation Systems Planning. (I E 764). Cr. 3**
Prereq: C E 485 or I E 587 or consent of instructor. Application of engineering economy and price theory in optimization of transportation system designs functioning primarily in an urban environment; analysis of congestion costs, externalities, primary and secondary costs and benefits, and peak period pricing, case studies.
- 765. Mass Transportation Systems. Cr. 2**
Prereq: C E 763 or consent of instructor. 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.
- 766. Traffic Simulation Models. Cr. 2**
Prereq: C E 762. A study of simulation models applied to problems of traffic flow and operations. Macroscopic and microscopic models as applied to intersection, corridors and networks.
- 767. Airport Engineering. Cr. 2**
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.
- 768. Transportation Planning Models. Cr. 3**
Prereq: C E 763. Computer application of various transportation planning models including trip generation and distribution, modal splits and traffic assignment techniques.
- 769. Transportation Systems Management in Public Works. Cr. 3**
Prereq: C E 460 or consent of instructor. Concepts of managing transportation systems; optimizing the use of existing resources in a multi-modal concept with a minimum of capital intensive programs.
- 790. Directed Study. Cr. 1-4(Max. 6)**
Prereq: written consent of adviser, chairperson and engineering graduate officer for master's students; written consent of adviser, chairperson and Dean of Graduate Studies for Ph.D. students.
- 795. Special Topics in Civil Engineering II. Cr. 1-4**
Prereq: consent of instructor. Maximum of four credits in Special Topics in any one degree program. A consideration of special subject matter in civil engineering. Topics to be announced in *Schedule of Classes*.
- 796. Research. Cr. 1-4(Max. 6)**
Prereq: consent of adviser and chairperson.
- 824. Biochemical Aspects of Waste Treatment. Cr. 3**
Prereq: four credits in organic chemistry, four credits in biochemistry and C E 721. 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.
- 827. Physio-Chemical Principles Applied to Water and Waste Treatment. Cr. 3**

Prereq: eight credits in chemistry or C E 522. Discussions of the thermodynamic, kinetic and colloidal properties of impurities, including surface chemistry and coagulation of colloidal systems in treatment systems.

- 833. Analysis and Design of Multistory Structures. Cr. 2**
Prereq: C E 633 and 739. Elastic analysis; wind loadings; plastic analysis and design; computer used in problem solution. Case studies of current designs.
- 851. Theoretical Soil Mechanics. Cr. 3**
Prereq: C E 701 or consent of instructor. Investigation and comparison of classical and probabilistic theories for stress distributions in and seepage through soils.
- 852. Consolidation Theories. Cr. 3**
Prereq: C E 851 or consent of instructor. Theories for the consolidation of saturated and partly saturated soils. Analytical and numerical solutions.
- 853. Theories of Bearing Capacity and Lateral Earth Pressure. Cr. 3**
Prereq: C E 851. Development of limiting equilibrium, numerical and graphical solutions to problems involving soils in plastic equilibrium.
- 860. Traffic Flow Theory. Cr. 3**
Prereq: C E 762. 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 models of delay, inventory and stochastic processes.
- 861. Transportation Engineering Systems Analysis. (I E 861). Cr. 3**
Prereq: C E 763, I E 577 or consent of instructor. 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.
- 862. Transportation Engineering Systems Design I. Cr. 2**
Prereq: C E 765, I E 577 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.
- 863. Transportation Engineering Systems Design II. Cr. 2**
Prereq: C E 862. Continuation of C E 862.
- 864. Transportation Engineering Systems Design III. Cr. 2**
Prereq: C E 863. Continuation of C E 863.
- 895. Special Topics in Civil Engineering III. Cr. 1-4**
Prereq: consent of adviser. Maximum of four credits in Special Topics in any one degree program. Topics to be announced in *Schedule of Classes*.
- 897. Seminar. Cr. 1-2**
Prereq: consent of adviser. Current developments in research and practice in the field of civil engineering.
- 899. Master's Thesis Research and Direction. Cr. 1-8(8 req.)**
Prereq: consent of adviser.
- 997. Doctoral Seminar. Cr. 1-2(Max. 4)**
Prereq: consent of doctoral adviser; coreq: C E 999.
- 999. Doctoral Dissertation Research and Direction. Cr. 1-16**
Prereq: consent of doctoral adviser. Offered for S and U grades only. Maximum of ten credits may be elected before doctoral candidacy is obtained.

Electrical And Computer Engineering (ECE)

- 100. Introduction to Electrical and Computer Engineering. (Lct: 1; Quz: 1). Cr. 2**
Offered for S and U grades only. Material fee as indicated in *Schedule of Classes*. Instrumentation, calculators, electrical circuits and electronic materials, work, power, energy, lasers, holography, bioengineering and computers.
- 262. Introduction to Microcomputers. (Lct: 3; Lab: 3; Quz: 1). Cr. 4**
Prereq: CSC 105. Material fee as indicated in *Schedule of Classes*. Basics of digital system, functional blocks of microcomputers, assembly language and machine code, applications of microcomputers and experimental demonstrations.
- 330. Introduction to Electrical Circuits. (Lct: 3; Quz: 1). Cr. 3**
Prereq: PHY 218; prereq, or coreq: MAT 204. Material fee as indicated in *Schedule of Classes*. 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. Sinusoidal steady-state response. Introduction to electrical and electronic instrumentation with experiments involving measurements in simple electrical networks.
- 331. Electrical Circuits I: Laboratory. (Lab: 4). Cr. 1**
Prereq: ECE 330. Material fee as indicated in *Schedule of Classes*. Introduction to electrical and electronic instrumentation with applications to measurements in simple electrical networks.
- 333. Electrical Circuits II. (Lct: 4). Cr. 4**
Prereq: ECE 330, MAT 204. Material fee as indicated in *Schedule of Classes*. Continuation of sinusoidal steady-state concepts from ECE 330. Complex frequency concepts. Frequency response and S-plane. Resonant and coupled circuits. Two-port networks.
- 355. Electronics I. (Lct: 4). Cr. 4**
Prereq: MAT 204, PHY 218. Coreq: ECE 333. Material fee as indicated in *Schedule of Classes*. 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. Introduction to the behavior of semiconductor and electronic devices.
- 356. Electronics Laboratory I. (Lct: 1; Lab: 3). Cr. 2**
Prereq: ECE 355; coreq: 455. Material fee as indicated in *Schedule of Classes*. Capabilities and uses of basic electronic instruments. Experimental investigation of electron and semiconductor devices and their behavior in single-stage circuits.
- 361. Digital Logic I. (Lct: 4). Cr. 4**
Prereq: ECE 262. Material fee as indicated in *Schedule of Classes*. Introduction, switches, gates and propositional calculus. Minimization of switching circuits. Flip-flops. Reduction and minimization of sequential machines. The state-assignment problem. Asynchronous sequential circuits.
- 385. Introduction to Engineering Optics. (Lct: 4). Cr. 4**
Prereq: ECE 330. Material fee as indicated in *Schedule of Classes*. Introduction to contemporary optical engineering. The fundamental principles of geometrical optics, wave properties of light, Fourier optics and interaction of light and matter.
- 400. Electrical and Computer Engineering Laboratory. (Lab: 3). Cr. 1**
Prereq: senior standing. Material fee as indicated in *Schedule of*

Classes. Experimental project under supervision of faculty member.

433. Linear Network and System Analysis. (Lct: 4). Cr. 4

Prereq: ECE 333. Material fee as indicated in *Schedule of Classes*. Fourier series analysis. Fourier transform properties and analysis. Laplace transform for complete solution to linear network or system response. Formulation of equilibrium equations for electromechanical systems in both classical and state-space form. Linear incremental concepts, general numerical solution.

434. Electrical Circuits Laboratory II. (Lab: 3). Cr. 1

Prereq: ECE 333 and 480. Material fee as indicated in *Schedule of Classes*. Experimental investigation of the transient and sinusoidal frequency response characteristics of networks. Coupled circuits and resonance phenomena. Two-port networks. Electromagnetic field experiments.

441. Electromechanical Energy Conversion. (Lct: 4). Cr. 3

Material fee as indicated in *Schedule of Classes*. Formulation of equilibrium equations for electromechanical systems in both classical and state-space form. Linear incremental concepts, general numerical solutions.

447. Control Systems I. (Lct: 4). Cr. 4

Prereq: ECE 433 and 355. Material fee as indicated in *Schedule of Classes*. Linearization techniques, steady-state errors, control system specifications, frequency-response and root-locus techniques for meeting specifications; cascade compensation. Feedback compensation.

455. Electronics II. (Lct: 4). Cr. 4

Prereq: ECE 355 and 333. Material fee as indicated in *Schedule of Classes*. A continuation of ECE 355. Graphical and small signal analysis of semi-conductor devices. Equivalent circuits. Gain and Bandwidth. Multi-stage and feedback amplifiers. Special-purpose circuits.

456. Electronics Laboratory II. (Lct: 1; Lab: 3). Cr. 2

Prereq: ECE 455. Material fee as indicated in *Schedule of Classes*. Laboratory investigations and design of multistage amplifier and special-purpose circuits.

461. Digital Logic II. (Lct: 4). Cr. 4

Prereq: ECE 361. Material fee as indicated in *Schedule of Classes*. MSI and LSI circuits. Flip-flop circuits. Traditional design of arithmetic units, counters and registers. Multiple-input controller design. ROMs, PROMs and PLAs. Programmable system controllers. Hardwired and microprogrammed control units. Design of a small computer.

463. Computer Laboratory. (Lct: 1). Cr. 1

Prereq: ECE 361. Material fee as indicated in *Schedule of Classes*. T combinational and sequential circuits. Adders, flip-flops, registers, and counters.

468. Computer Organization. (Lct: 4). Cr. 4

Prereq: ECE 361. Material fee as indicated in *Schedule of Classes*. Introduction to basic concepts of digital computers including representation of information, storage mechanisms, logical circuits, I/O devices and interfaces, elementary machine, special features in computers.

470. Introduction to Communication Theory. (Lct: 4). Cr. 4

Prereq: I E 322 and ECE 433. Material fee as indicated in *Schedule of Classes*. Basic information transmission concepts. Spectral analysis. Transmission through linear networks. Sampling principles. Digital and analog communication signals and systems. The effect of noise in communication systems. Elementary decision theory.

480. Electromagnetic Fields and Waves I. (Lct: 4). Cr. 4

Prereq: MAT 204. Material fee as indicated in *Schedule of Classes*.

Fundamentals of electromagnetic engineering, static electric and magnetic fields using vector analysis and fields of steady currents, Maxwell's equations and boundary value problems. Basic principles of plane waves, transmission lines and radiation.

482. Fields and Waves Laboratory. (Lab: 3). Cr. 1

Prereq: ECE 480. Material fee as indicated in *Schedule of Classes*. Topics in electrostatics, microwave propagation and detection, dielectric properties of materials, guided waves, magnetic interactions, radiation and scattering, optics and acoustics.

490. Directed Study. (Ind: 1). Cr. 1-2(Max. 4)

Prereq: senior standing; consent of adviser. Material fee as indicated in *Schedule of Classes*. 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.

497. Seminar. (Smr: 2). Cr. 2

Prereq: senior standing in electrical and computer engineering. Material fee as indicated in *Schedule of Classes*. Reports and discussions of current topics of special interest in electrical and computer engineering.

502. (CSC 662) Computational Algorithms: Linear Algebra. Cr. 4

Prereq: CHE 304. Material fee as indicated in *Schedule of Classes*. Floating point arithmetic; use of material software packages; direct methods and iterative methods for linear systems of equations; error analysis and norms; computation of eigenvalues and eigenvectors; least square problems; related topics.

504. Numerical Methods for Engineers. (CHE 504). (Lct: 4). Cr. 4

Prereq: MAT 204 and CHE 304. Material fee as indicated in *Schedule of Classes*. Ordinary and partial differential equations of engineering by modern numerical methods, including digital computation aspects.

510. (M E 510) Engineering Physiology. (Lct: 4). Cr. 4

Prereq: senior standing or consent of instructor. Material fee as indicated in *Schedule of Classes*. The basic principles of human physiology presented from the engineering viewpoint. Bodily functions, their regulation and control discussed in quantitative terms and illustrated by simple mathematical models when feasible.

516. (M E 516) Biomechanics I. (Lct: 4). Cr. 4

Prereq: M E 340 or consent of instructor. Material fee as indicated in *Schedule of Classes*. Mechanics applied to biological systems. Static and dynamic analysis of bone, muscle and joints. Impact biomechanics, including experimental simulation of automotive collision, instrumentation and data analysis.

530. Nonlinear Network Theory. (Lct: 4). Cr. 4

Prereq: ECE 433. Material fee as indicated in *Schedule of Classes*. Nonlinear network theory including graph theory, topological analysis of networks, tree, normal tree and state equation of dynamic nonlinear networks. Theories of existence and uniqueness of solution, stability and computational methods.

531. Active Filters. (Lct: 4). Cr. 4

Prereq: ECE 433. Material fee as indicated in *Schedule of Classes*. Introduction to active filter design. Basic concepts in filter theory. Op. Amp. and applications. Active-RC filter synthesis. Multiloop feedback design. Computer-aided design and sensitivity optimization.

536. Computer-Aided System Analysis and Design. (Lct: 4). Cr. 4

Prereq: ECE 433. Material fee as indicated in *Schedule of Classes*. Analysis and design of linear and nonlinear systems and network synthesis by computer-aided design languages such as LISA and PCAP.

540. Electrical Machinery: Principles and Applications. (Lct: 4). Cr. 4

Material fee as indicated in *Schedule of Classes*. Electromagnetic, transformers and rotating electromagnetic machines. Single and three-phase induction motors, direct current motors.

541. Control System Components. (Lct: 3). Cr. 3

Prereq: ECE 447. Material fee as indicated in *Schedule of Classes*. Mathematical description and performance characteristics. Transducers, potentiometers, LVDT's accelerometers, gyros, temperature, flow and pressure sensors. Servo motors, stepper motors, motor control methods. Controlled rectifiers. Hydraulic, pneumatic servos and actuators. Electronic, mechanical and fluidic amplifiers and compensating networks.

543. Electric Energy Systems Engineering I. (Lct: 4). Cr. 4

Prereq: ECE 433 or consent of instructor. Material fee as indicated in *Schedule of Classes*. Transmission capacity, load characteristics, power frequency control. Energy system component analysis and modeling. Steady-state analysis, load-flow problem and algorithms, optimal dispatch. Kronprimitive machine formulation and applications. Machine equivalent circuits.

546. Electrical Energy by Direct Conversion. (Lct: 4). Cr. 3

Prereq: ECE 480 and 355. Material fee as indicated in *Schedule of Classes*. Methods of converting thermal, nuclear, solar and chemical energy directly into electrical energy. Characteristics of thermoelectric devices and materials, converters, magnetohydrodynamic engines, photovoltaic devices and fuel cells.

547. Control Systems II. (Lct: 4). Cr. 4

Prereq: ECE 447. Material fee as indicated in *Schedule of Classes*. 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.

548. Systems and Control Laboratory. (Lct: 1; Lab: 3). Cr. 2

Prereq: ECE 447. Material fee as indicated in *Schedule of Classes*. 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.

552. Solid State Electronics Laboratory. (Lab: 3). Cr. 1-3

Prereq: ECE 555 or consent of instructor. Material fee as indicated in *Schedule of Classes*. Experimental projects on solid state materials and devices. Experiments on materials preparation, characterization, fabrication and parameter measurements of devices.

553. Analog and Digital Communication Circuits. (Lct: 4). Cr. 4

Prereq: ECE 355. Material fee as indicated in *Schedule of Classes*. Amplitude, frequency and pulse modulation; detection; operational amplifiers; introduction to linear integrated circuits.

555. Solid State Electronics I. (Lct: 4). Cr. 4

Prereq: ECE 355 and 480. Material fee as indicated in *Schedule of Classes*. Physical basis for the energy band structure of solids with particular emphasis on semiconductors. Basic principles associated with solid state devices. Extrinsic and intrinsic semiconductors. Static behavior of P-N junctions. Insulators and magnetic materials.

557. Electronic Digital Circuit Analysis and Design. (Lct: 4). Cr. 4

Prereq: ECE 455. Material fee as indicated in *Schedule of Classes*. 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. Logic and storage circuits, switching speeds and other considerations involved in the design of digital circuits.

560. Design of Computer Languages. (Lct: 4). Cr. 4

Prereq: ECE 262. Material fee as indicated in *Schedule of Classes*. Statement structure, algorithmic structure, list processing, string and array manipulation; and special topics in programming languages.

561. Design and Analysis of Algorithms. (Lct: 4). Cr. 4

Prereq: ECE 468. Material fee as indicated in *Schedule of Classes*. Introduction to the analysis of algorithms, including modeling and resource requirements. Determination of the solvability of problems. Design of algorithms for solvable problems that are efficient in time, memory and other resources.

562. Mini- and Microcomputers. (CSC 537). (Lct: 4). Cr. 4

Prereq: ECE 461 or CSC 531. Material fee as indicated in *Schedule of Classes*. Treatment of the architecture and organization of microcomputers. The configuration, application and programming of several microcomputers. Design and applications of minicomputers. Processor organization, instruction set selection, memory structure and addressing methods, controller designs, hardware arithmetic functions, I/O interface, peripheral devices, applications and required software systems.

563. Microcomputer Laboratory. (Lct: 1; Lab: 3). Cr. 2

Prereq: ECE 562. Material fee as indicated in *Schedule of Classes*. Microprocessor programming, study of interrupt structures, interfacing with teletypes, floppy disks, cassettes, keyboards and displays, testing and evaluation of microprocessors, use and study of cross-software for microprocessor development.

564. (CSC 541) Computer Operating Systems. (Lct: 4). Cr. 4

Prereq: CSC 370 and CSC 441 or ECE 560. Material fee as indicated in *Schedule of Classes*. Hardware architecture for operating systems: privileged instructions, protection, interrupts, input and output via channel programming, buffering, services provided by operating systems; batch, multiprogramming and time-sharing systems; memory management including virtual memory; concurrent processing; deadlocks, mutual exclusion and synchronization; job and processor scheduling; device control and virtual devices.

565. (CSC 638) Microprogrammed Computer Design. (Lct: 4). Cr. 4

Prereq: CSC 531 or ECE 461. Material fee as indicated in *Schedule of Classes*. Introduction to microprogramming techniques and discussion of their implementation. Consideration of control word formats and microinstruction coding. Use of microprogrammable computers to emulate other computers. Implementation of microprogramming including control-store timing, capacity and cost.

566. Analog Computers. (Lct: 4; Lab: 3.5). Cr. 5

Prereq: ECE 433, 455. Material fee as indicated in *Schedule of Classes*. Basic theory of analog computers. Analog devices, operational amplifiers, multipliers, function generators, error analysis. Time and magnitude scaling. Analog simulation of linear and nonlinear algebraic and dynamic systems, lumped and distributed parameter systems. Laboratory projects.

567. Systems Programming. (Lct: 4). Cr. 4

Prereq: ECE 268. Material fee as indicated in *Schedule of Classes*. Assembly language programming; macros; assemblers and loaders; I/O and interrupt programming; introduction to operating systems and compiler techniques.

568. Switching Circuits I. (Lct: 4). Cr. 4

Prereq: ECE 461. Material fee as indicated in *Schedule of Classes*. Combinational switching circuits. Review of Boolean algebra. Techniques for the minimization of multiple-output switching functions, functional decomposition and symmetric functions, threshold logic, multi-valued logic, fuzzy sets, reliable design and fault-diagnosis.

577. Digital Signal Processing. (Lct: 4). Cr. 4
Prereq: ECE 470 or consent of instructor. Material fee as indicated in *Schedule of Classes*. Analysis of discrete signals and systems. Applications to digital filtering, digital communication and encoding.

580. Electromagnetic Fields and Waves II. (Lct: 4). Cr. 4
Prereq: ECE 480. Material fee as indicated in *Schedule of Classes*. Transmission lines, resonators, antenna and radiation, treatment of specialized topics in field and wave phenomena.

583. Microwaves. (Lct: 4). Cr. 4
Prereq: ECE 580. Material fee as indicated in *Schedule of Classes*. Velocity modulation and klystron theory, traveling wave tubes, cavity magnetrons, microwave networks, detection and measurements.

584. Electro-Optics Laboratory. (Lab: 3). Cr. 1
Prereq: ECE 585. Material fee as indicated in *Schedule of Classes*. Optical bench alignment and usage. Photographic process and characteristic. Fresnel and Fraunhofer diffractions, spectrum analysis, off-axis holography, non-linear effect, rainbow holographic, generation of color image, CRT scanner, complex spatial filtering, optical convolution and correlation. Imaging through turbulence, white light processing, holographic interferometry, and pseudocolor encoding.

585. Electro-Optics I. (Lct: 4). Cr. 4
Prereq: ECE 480 and 470. Material fee as indicated in *Schedule of Classes*. Introduction to diffraction, coherent and incoherent optical information processing, side-looking radar, theory of coherent and white light holography, holographic interferometry and the applications of optical information processing.

587. Introduction to Lasers. (Lct: 4). Cr. 4
Prereq: ECE 355. Material fee as indicated in *Schedule of Classes*. The fundamental principles of laser operation and a survey of the characteristics and applications of the major types of lasers currently in operation.

590. Directed Study. (Ind: 1). Cr. 1-4 (Max. 4)
Prereq: admission to MSEE program, approval of outline of proposed study by adviser and chairperson prior to registration. Material fee as indicated in *Schedule of Classes*. Supervised study and instruction in the field selected by the students.

595. Special Topics in Electrical and Computer Engineering I. (Lct: 1). Cr. 1-4
Prereq: consent of instructor. Maximum of nine credits in Special Topics may be elected in any one degree program. Material fee as indicated in *Schedule of Classes*. Special subject matter in electrical and computer engineering. Topics to be announced in *Schedule of Classes*

615. Bioelectronics I. (I E 615) (M E 515). (Lct: 1; Lab: 3). Cr. 2
Prereq: ECE 618 or consent of instructor. Material fee as indicated in *Schedule of Classes*. Investigation of an approved research project in the area of bioelectronics.

618. Bioinstrumentation. (M E 618) (I E 618). (Lct: 4). Cr. 4
Prereq: ECE 330 and 510. Material fee as indicated in *Schedule of Classes*. Engineering principles of physiological measurements, signal conditioning equipment, amplifiers, recorders and transducers. Recent advances in instrumentation.

643. Electric Energy Systems Engineering II. (Lct: 4). Cr. 4
Prereq: ECE 543. Material fee as indicated in *Schedule of Classes*. Load-frequency control, transient stability, application of modern optimal control theory to improved system operation and reliability. Techniques for computer modeling including nonlinear effects.

644. Linear Dynamic Systems. (Lct: 4). Cr. 4
Material fee as indicated in *Schedule of Classes*. General axiomatic formulation of dynamical systems, models using vector differential and difference equations, state variables, canonical forms, input-output descriptions. Linear system response. Controlability, observability. Introduction to stability theory.

655. Solid State Electronics II. (Lct: 4). Cr. 4
Prereq: ECE 555. Material fee as indicated in *Schedule of Classes*. Advanced concepts of the electronic properties of solid state devices. Semiconductor surface devices. Charge coupled devices and integrated circuit configurations. Solid state devices in the microwave region. Tunnel diodes, avalanche diodes and Gunn diodes.

665. Fault-Tolerant Computer Architecture. (CSC 632). (Lct: 4). Cr. 4
Prereq: ECE 461 or CSC 531. Material fee as indicated in *Schedule of Classes*. Survey of current literature in fault-tolerant design and fault diagnosis of combinational circuits. Use of redundancy in the form of majority logic or interwoven logic to prevent errors in spite of certain types of faults. Consideration of graphical and calculus methods for determining fault-finding experiments. Multi-valued and threshold logic.

666. Logical Design of Digital Computers I. (Lct: 4). Cr. 4
Prereq: ECE 568. Material fee as indicated in *Schedule of Classes*. Structure 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. MSI and LSI circuit implementation of high speed arithmetic processors. Special consideration given to the currently available technology.

668. Switching Circuits II. (Lct: 4). Cr. 4
Prereq: ECE 568. Material fee as indicated in *Schedule of Classes*. Synchronous sequential circuits and iterative networks, state equivalence and minimization, asynchronous sequential circuits, structure of sequential circuits, automata and linear machines. Laboratory experiments using digital integrated circuits as they pertain to sequential circuits.

685. Electro-optics II. (Lct: 4). Cr. 4
Prereq: ECE 585. Material fee as indicated in *Schedule of Classes*. Continuation of ECE 585. Study of coherent and incoherent optical systems and special topics in current optical research as applied to holography and information processing in engineering.

Courses Limited to Graduate Students

704. Mathematical Methods in Engineering I. (Lct: 4). Cr. 4
Prereq: MAT 523 or consent of instructor. Material fee as indicated in *Schedule of Classes*. Metric, Hilbert, Banach and dual spaces. Fixed-point and Lagrange-complement techniques. Approximation, estimation and optimization theory. Engineering applications to system, control and signal theory.

707. Topics in Mathematical System Theory. (Lct: 3). Cr. 3
Prereq: consent of instructor. Material fee as indicated in *Schedule of Classes*. Properties and characteristics of systems. System interconnections, time-evolution and types of causalities.

710. (M E 710) Mathematical Modeling in Bioengineering. (Lct: 4). Cr. 4
Prereq: M E 510. Material fee as indicated in *Schedule of Classes*. Mathematical models that simulate physiological or anatomical function. Models of the nervous and vascular systems, models for impact acceleration and current topics in bioengineering.

711. (I E 711) Human Factors and Ergonomics. (Lct: 4). Cr. 4
Prereq: graduate standing in engineering. Material fee as indicated in *Schedule of Classes*. Functional anthropometry; kinesiology; work physiology; sensory systems. Interaction with the environment. Manned systems design.

712. (I E 712) Human Factors in Systems. (Lct: 4). Cr. 4
Prereq: I E 627, I E 711. Material fee as indicated in *Schedule of Classes*. Human factors in design, evaluation and maintenance design applications in human factors. Detailed theoretical and methodological consideration of man as a system component.

713. (I E 713) Health and Safety Engineering. (Lct: 4). Cr. 4
Prereq: ECE 711. Material fee as indicated in *Schedule of Classes*. Models of overload capacities of human functions; audition, vision, respiration. Thermal, chemical, mechanical environments. Design of work processes, practices, and equipment.

714. (I E 714) Human Engineering and Product Liability. (Lct: 4). Cr. 4
Prereq: consent of instructor. Material fee as indicated in *Schedule of Classes*. Human factor considerations in product design. Minimization of health and injury hazards in product use and misuse. Legal considerations in product liability. Case studies.

715. Bioelectronics II. (M E 715) (I E 715). (Lct: 1; Lab: 3). Cr. 2
Prereq: ECE 615. Material fee as indicated in *Schedule of Classes*. Continuation of ECE 615.

716. (M E 716) Biomechanics II. (Lct: 4). Cr. 4
Prereq: M E 516. Material fee as indicated in *Schedule of Classes*. Biomechanical response of bone, muscle, skin, artery and other soft tissues to load or deformation. Structural and physiological response of body systems to impact and steady state vibration. Biofluid mechanics of blood flow. Gait analysis.

717. Electrophysiology. (I E 717) (M E 717) (CHE 717). (Lct: 3). Cr. 3
Prereq: ECE 510 or consent of instructor. Material fee as indicated in *Schedule of Classes*. 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.

718. Bioelectromagnetics. (M E 718) (I E 718). (Lct: 4). Cr. 4
Prereq: ECE 580 and 510 or consent of instructor. Material fee as indicated in *Schedule of Classes*. Studies of effects and potential health hazards of microwave radiation from electronic products and diagnostic and therapeutic devices. Emphasis on the mechanisms and methods of measurement. Consideration of biomedical applications.

719. Topics in Biomedical Engineering. (M E 719) (I E 719). (Lct: 3). Cr. 3
Prereq: consent of instructor. Material fee as indicated in *Schedule of Classes*. Seminar course covering current research problems in bioengineering and ergonomics. Weekly presentations are made by students, faculty and outside speakers. Members of the faculty attend and take responsibility for leading the discussions.

730. Network Synthesis. (Lct: 4). Cr. 4
Prereq: ECE 433. Material fee as indicated in *Schedule of Classes*. Introduction to realizability theory. Review of positive real functions. Contemporary techniques for synthesis of prescribed transfer functions. Scattering matrices, reciprocal and nonreciprocal n-ports.

741. Multivariable Control/Theory. (Lct: 4). Cr. 4
Prereq: ECE 644. Material fee as indicated in *Schedule of Classes*. Structural properties of linear dynamic systems. Pole assignment problem. Unity rank feedback. Multivariable zeros. Smith-McMillan forms. Geometrical interpretation using invariant

subspaces. Loop interaction problem. Dyadic matrices and commutative controllers. Rosenbrock's design method using Inverse Nyquist Array.

742. Nonlinear System Stability Theory in Electrical and Computer Engineering. (Lct: 4). Cr. 4
Prereq: ECE 644. Material fee as indicated in *Schedule of Classes*. Recent developments in nonlinear system analysis. Computer-aided design project required.

744. Dynamic Systems and Control. (Lct: 4). Cr. 4
Prereq: ECE 644. Material fee as indicated in *Schedule of Classes*. Formulation of optimal control problems. Pontryagin's maximum principle and necessary conditions for optimality, with applications. Dynamic programming; Hamilton-Jacobi equation; optimal feedback control; stochastic systems.

745. Large Scale System Engineering. (Lct: 4). Cr. 4
Prereq: ECE 433 and 704 or equiv. with consent of instructor. Material fee as indicated in *Schedule of Classes*. Methodologies for use in large-scale system design and analysis.

746. Control of Large Scale Systems. (Lct: 3). Cr. 3
Prereq: ECE 744 or consent of instructor. Material fee as indicated in *Schedule of Classes*. Model simplification by aggregation-decomposition, weak coupling approximation, singular perturbations. Stability of interconnected systems. Decentralized stochastic feedback control. Decentralized pole-placement methods. Decentralized strategies for dynamic games. Theory of teams.

747. Sampled Data System and Digital Control. (Lct: 4). Cr. 4
Prereq: ECE 644 or consent of instructor. Material fee as indicated in *Schedule of Classes*. Technological reasons for sampling; digital control system components. Signal conversion and processing. The z-transform and its applications. State variable representations. Controllability, observability, stability analysis. Compensator design using classical techniques. State space design techniques. Optimal control and estimation.

755. Advanced Solid State Electronics I. (Lct: 4). Cr. 4
Prereq: ECE 555 or 655 or consent of instructor. Material fee as indicated in *Schedule of Classes*. 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.

756. Integrated Optics. (Lct: 4). Cr. 4
Prereq: ECE 480 and 355. Material fee as indicated in *Schedule of Classes*. Introduction to the concepts and techniques of integrated optics. Description of existing devices. Engineering applications of fibers.

761. Parallel Processing Organization. (Lct: 4). Cr. 4
Prereq: CHE 304. Material fee as indicated in *Schedule of Classes*. Array processors, loosely and tightly coupled multiprocessors, interconnection networks, parallel-access-memory organizations, data-flow computers. Parallel and associative processors: Illiac, Staran, Cray, Pepe, and the like. ASP-systems. Distributed computing. Review and discussion of current research papers.

766. Logical Design of Digital Computers II. (Lct: 4). Cr. 4
Prereq: ECE 666. Material fee as indicated in *Schedule of Classes*. SIMD and MIMD machines, array and vector processing, data flow computers, parallel memory organization, architectural considerations for dedicated applications, review and discussion of current research papers in the area of computer architecture.

767. Pattern Recognition. (Lct: 4). Cr. 4
Prereq: ECE 770. Material fee as indicated in *Schedule of Classes*. Statistical methods in pattern recognition. Estimation, feature extraction and classification. Applications of pattern recognition

techniques. Iterative arrays and parallel processing techniques for image processing.

770. Statistical Communication Theory. (Lct: 4). Cr. 4

Prereq: ECE 470. Material fee as indicated in *Schedule of Classes*. Random signals and noise, optimal signal detection and filtering. Effect of noise in modulation and information transmission.

771. Modulation Theory. (Lct: 3). Cr. 3

Prereq: ECE 770. Material fee as indicated in *Schedule of Classes*. Analog and digital modulation systems, their spectral properties and their performance in the presence of noise.

775. Information Theory and Applications. (Lct: 4). Cr. 4

Prereq: ECE 770 or consent of instructor. Material fee as indicated in *Schedule of Classes*. Statistical theory of communication. The entropy concept. Channel capacity theorems. Applications to problems such as coding for reliable communication, image coding and restoration and/or optical information transmission.

778. Data Communications. (Lct: 4). Cr. 4

Prereq: ECE 770 or consent of instructor. Material fee as indicated in *Schedule of Classes*. 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.

780. Electromagnetic Theory and Applications. (Lct: 4). Cr. 4

Prereq: ECE 580 or consent of instructor. Material fee as indicated in *Schedule of Classes*. 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. Scattering and diffraction of waves, exterior boundary value problems, Fourier transformation, Green's function, and integral equation techniques. Approximation methods.

781. Antennas and Propagation. (Lct: 4). Cr. 4

Prereq: ECE 580. Material fee as indicated in *Schedule of Classes*. Physical principles of radiation; directive radiation, antenna currents; impedance, reciprocity, and equivalence; general theory of linear antennas; linear antenna systems; special antennas.

790. Directed Study. (Ind: 1). Cr. 1-8 (Max. 8)

Prereq: written consent of adviser, chairperson and graduate officer for master's students; written consent of adviser, chairperson and Dean of Graduate Studies for Ph.D. students. Outline of proposed study and petition must be submitted to graduate committee in advance. Material fee as indicated in *Schedule of Classes*. Supervised study and instruction in an advanced topic.

795. Special Topics in Electrical and Computer Engineering II. (Lct: 1). Cr. 1-4

Prereq: consent of instructor. Maximum of six credits in Special Topics may be elected in any one degree program. Material fee as indicated in *Schedule of Classes*. A consideration of special subject matter in electrical and computer engineering. Topics to be announced in *Schedule of Classes*.

796. Research. (Ind: 1). Cr. 1-8 (Max. 8)

Prereq: consent of adviser and chairperson. Material fee as indicated in *Schedule of Classes*. Design, investigation and experimental work on some phase of electrical and computer engineering. Written report required.

799. Master's Essay Direction. (Ind: 2). Cr. 2

Prereq: consent of adviser. Material fee as indicated in *Schedule of Classes*.

804. Mathematical Methods in Engineering II. (Lct: 4). Cr. 4

Prereq: ECE 704. Material fee as indicated in *Schedule of Classes*.

Topological spaces, generalized functions, positive and monotone operators and duality theorems. Engineering applications to nonlinear system, control, signal and field theory.

855. Advanced Solid State Electronics II. (Lct: 4). Cr. 4

Prereq: ECE 555 or consent of instructor. Material fee as indicated in *Schedule of Classes*. Current topics in solid state phenomena and devices such as heterojunctions, solar cells, light emitting and laser diodes, metal-semiconductor barriers and junctions photoemissive cathodes and amorphous devices such as electrical and optical memory units.

870. Stochastic Processes in Engineering. (Lct: 4). Cr. 4

Prereq: ECE 770. Material fee as indicated in *Schedule of Classes*. Measure and probability spaces, random functions. Stochastic processes. Foundations of detection and estimation theory. Applications to signal, detection and estimation, optional filtering in communication and control systems.

880. Topics in Wave Phenomena. (Lct: 4). Cr. 4

Prereq: ECE 780. Material fee as indicated in *Schedule of Classes*. Topics of current research interest, applications in biomedical engineering, oceanography, atmospheric sciences, geophysics and astronomy.

897. Seminar. (Smr: 3). Cr. 1

Prereq: consent of graduate adviser. Material fee as indicated in *Schedule of Classes*. Discussion of topics in electrical and computer engineering.

899. Master's Thesis Research and Direction. (Ind: 1).

Cr. 1-8(8 req.)

Prereq: consent of graduate adviser. Material fee as indicated in *Schedule of Classes*.

997. Doctoral Seminar. Cr. 1-4(Max. 4)

Prereq: consent of doctoral adviser. Coreq: ECE 999. Material fee as indicated in *Schedule of Classes*.

999. Doctoral Dissertation Research and Direction. (Ind: 1). Cr. 1-16

Prereq: consent of doctoral adviser. No more than seven credits may be elected before doctoral candidacy is obtained. Offered for S and U grades only. Material fee as indicated in *Schedule of Classes*.

Industrial Engineering (I E)

322. Probability and Statistics in Engineering. Cr. 3

Prereq: MAT 202, CSC 105. An introduction to probability theory and statistics with emphasis on engineering data analysis and design methods which recognize the concept of variability. Applications to product reliability, process control and queueing systems.

330. Industrial Organization. Cr. 3

Prereq: junior standing. Principles and types of organizations, departmental function and interrelationships in manufacturing and service systems.

335. (M E 345) Manufacturing Processes I. Cr. 4

Prereq: M E 360, MET 130. A study of the field of manufacturing processes from a mechanical engineering design standpoint. Topics include optimum mechanical design for cost, weight, stresses, energy, tolerances in such processes as forging, casting, welding and metal cutting. Metrology, automation, cutting forces and cutting speeds. Lab phase includes industrial plant visits, hands on experience in the machine shop with projects such as metal removal rates, cutting forces.

Machine-tool demonstrations and films of manufacturing operations.

341. Systems Simulation. Cr. 4

Prereq: I E 322, CSC 105. Design and analysis of production and service systems using computer simulation. Computer assignments and a project are required.

435. Manufacturing Processes II. (M E 446). Cr. 4

Prereq: I E 322, MET 130, I E 335 or M E 345 or MET 260. Effect of process parameter selection on manufacturing process performance. Processes include casting, machining, welding, bulk deformation and sheet metal-working. Process parameters include materials, gating system, solidification rate, feed, speed, cutting forces, coolants, and weld size. Measures of performance include yield, tool life, surface finish and dimensional tolerance.

490. Directed Study. Cr. 1-6

Prereq: senior standing; consent of chairperson; outline of proposed study approved by instructor and chairperson prior to election of course. Supervised study and instruction in a field selected by the student.

497. Senior Seminar. Cr. 2

Prereq: senior standing in industrial engineering. No graduate credit. Faculty and guest speakers discuss professional responsibilities and ethics, the role of industrial engineers at various organizational levels in manufacturing and service organizations, advanced study opportunities, historical perspective of the profession and future trends. Presentation of a paper is required.

501. Environmental Core Course I. (ENV 501) (PHY 511). Cr. 4

Introduction to environmental problems, energy, resources, population and pollution. The environment as a system, concepts of feedback loops, exponential growth and decay. The applications of rational analysis to the outcome of human activity. Lectures, discussions, games and simulations.

508. (M E 508) Dynamics of Problem Solving. Cr. 3

Prereq: MAT 204. Introduction to problem solving techniques, probability and information theory, modeling in engineering, physical and social sciences, decision-making, optimization and dynamic system models.

510. (M E 510) Engineering Physiology. Cr. 4

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 by simple mathematical models when feasible.

511. Human Factors in Design. Cr. 4

Prereq: I E 322. Anthropometric, physiologic, psychologic and biomechanical characteristics of people which affect the performance of man-machine systems. Sensory, information processing and motor abilities of people. Systematic consideration of human factors in engineering. A design project is required.

512. Work Design and Measurement. Cr. 4

Prereq: I E 322. Control, operation and design of manned industrial and service systems. Analysis and evaluation of processes and operations. Methods and techniques to measure work performance and strain of the human operator. Principles and procedures to design and operate systems that involve people for maximal safety, job satisfaction and efficiency.

516. (M E 516) Biomechanics I. Cr. 4

Prereq: M E 340 or consent of instructor. Mechanics applied to biological systems. Static and dynamic analysis of bone, muscle and joints. Impact biomechanics, including experimental simulation of automotive collision, instrumentation and data analysis.

525. Engineering Data Analysis. Cr. 4

Prereq: I E 322. Advanced concepts for the analysis of variability in engineering problems, multivariate distributions, hypothesis testing, non-parametric statistics, point and interval estimation, fitting straight lines, goodness of fit tests, contingency tables and introduction to the analysis of variance.

531. Production Control. Cr. 4

Prereq: I E 341, 556. The design of production planning and control systems. Materials management, forecasting, planning, scheduling of production systems, the planning and scheduling for large scale projects and introduction to the design of computerized materials management systems. Applications of operations research models to production control problems.

533. Facilities Design. Cr. 4

Prereq: I E 556, 587. Design of manufacturing, warehouse and material handling facilities. Use of analytic and computer-aided methods in the facilities design process.

541. Computer Aided Manufacturing I. Cr. 4

Prereq: ECE 262, I E 556. The use of microprocessors in the design of computer-aided manufacturing systems. A design project involving software development and the construction of a physical simulation is required.

556. Operations Research I. Cr. 4

Prereq: I E 322, MAT 204. An introduction to the philosophy of operations research. Formulation of linear programming models and their solution. Duality and sensitivity analysis. The transportation model. Introduction to probabilistic modeling and applications of queueing models.

577. Operations Research II. Cr. 4

Prereq: I E 556. Advanced concepts in deterministic modeling. Network models and algorithms and formulation of integer and nonlinear programming models. Advanced concepts in applied probability. Decision analysis, Markov chains, and decision processes.

587. Engineering Economy. Cr. 4

Prereq: I E 322. Economic analysis of engineering projects. Selection of appropriate interest rates and methods of analysis, depreciation and tax considerations and use of accounting data in the comparison of investment alternatives.

595. Special Topics in Industrial Engineering I. Cr. 1-4

Prereq: consent of chairperson. Special subject matter in industrial engineering. Topics to be announced in *Schedule of Classes*.

615. (ECE 615) Bioelectronics I. Cr. 2

Prereq: I E 618 or consent of instructor. Investigation of an approved research project in the area of bioelectronics.

618. (ECE 618) Bioinstrumentation. Cr. 4

Prereq: ECE 330, M E 510. Engineering principles of physiological measurements. Signal conditioning equipment, amplifiers, recorders and transducers. Recent advances.

621. Probability Models and Data Analysis. Cr. 4

Prereq: MAT 204. No credit after I E 525. Analysis of variability in engineering decision making; data analysis, probabilistic models, expectation, joint distributions, confidence limits and hypothesis testing.

626. Reliability and Quality Control. Cr. 4

Prereq: I E 322. Introduction to product assurance in engineering design and manufacturing: system reliability models, life testing strategies, use of the exponential and Weibull distributions, process capability analysis, control charts, sampling plans, organization and economics.

627. Engineering Experimental Design. Cr. 4

Prereq: I E 525 or 621. The design of engineering experiments for manufacturing process analysis, human factors experimentation, societal systems analysis and life testing; basic experimental design models, blocking, factorial experiments, nested designs, covariance analysis, response surface analysis, estimation of effects.

631. Production Systems I. Cr. 4

Prereq: I E 621. No credit after I E 531 or I E 533. Fundamental theories and concepts in the design and operation of production systems for manufacturing and service organization.

642. Computer Aided Manufacturing II. Cr. 4

Prereq: I E 541. The integration of automated manufacturing systems into large manufacturing cells with emphasis on distributed processing problems, hierarchical control structures and interaction with a manufacturing data base.

643. Computer Simulation Methods. Cr. 4

Prereq: I E 525 or 621; 577 or 771 and computer programming experience. The application of discrete, continuous and combined simulation methods to the solution of a variety of production and service systems problems. Computer simulation and a term project involving an application are required.

645. Management Information Systems. Cr. 4

Prereq: I E 341 or 643 and 531 or 631. Basic components of computer systems, including types of systems, hardware and software. The use of data structures in management information systems, including storage, manipulation and retrieval of data files. Introduction of concepts involved in the design and evaluation of computer systems.

663. Introduction to Transportation Science. (C E 663). Cr. 3

Prereq: I E 577 or C E 464 or consent of instructor. Theoretical developments in operations research for describing traffic flow for highway, railway and advanced automated systems of ground transport.

697. Seminar. Cr. 1

Prereq: consent of adviser. Current developments in research and practice in the field of industrial engineering and operations research.

Courses Limited to Graduate Students

710. (M E 710) Mathematical Modeling in Bioengineering. Cr. 4

Prereq: I E 510. Mathematical models that simulate physiological or anatomical function. Models of the nervous and vascular systems, models for impact acceleration and current topics.

711. Human Factors and Ergonomics. (ECE 711) (M E 711). Cr. 4

Prereq: graduate standing in engineering. Functional anthropometry; kinesiology; work physiology; sensory systems. Interaction with the environment. Manned systems design.

712. Human Factors in Systems. (M E 712) (ECE 712). Cr. 4

Prereq: I E 711, 627. Human factors in design, evaluation and maintenance of systems. Original research and design applications in human factors. Detailed theoretical and methodological consideration of models of man as a system component.

713. Health and Safety Engineering. (ECE 713) (M E 713). Cr. 4

Prereq: I E 711. Models of overload capacities of human functions; audition, vision, respiration. Thermal, chemical, mechanical environments. Design of work processes, practices, and equipment.

714. Human Engineering and Product Liability. (M E 714) (ECE 714). Cr. 4

Prereq: consent of instructor. Human factors considerations in

product design. Minimization of health and injury hazards in product use and misuse. Legal considerations in product liability. Theories of damage, defense and liability. Case studies.

715. (ECE 715) Bioelectronics II. Cr. 2

Prereq: I E 615. Continuation of I E 615.

716. (M E 716) Biomechanics II. Cr. 4

Prereq: M E 516. Biomechanical response of bone, muscle, skin, artery and other soft tissues to load or deformation. Structural and physiological response of body systems to impact and steady state vibration. Biofluid mechanics of blood flow. Gait analysis.

717. (ECE 717) Electrophysiology. Cr. 3

Prereq: ECE 480, M E 510 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.

718. (ECE 718) Bioelectromagnetics. Cr. 4

Prereq: ECE 580 and ECE 510 or consent of instructor. Studies of effects and potential health hazards of microwave radiation from electronic products and diagnostic and therapeutic devices. Emphasis on the mechanisms and methods of measurement. Consideration of biomedical applications.

719. (ECE 719) Topics in Biomedical Engineering. Cr. 3

Prereq: consent of instructor. Seminar course covering current research problems in bioengineering and ergonomics. Weekly presentations are made by students, faculty and outside speakers. Members of the faculty attend and take responsibility for leading the discussions.

724. Reliability and Quality Assurance Systems. Cr. 4

Prereq: I E 777. Product assurance activities in industry; organization structures, concepts of early design analysis, estimating product life, process capability analysis, process control.

726. Advanced Quality Control. Cr. 4

Prereq: I E 626. The theory of variables and attribute sampling plans, analysis of switching procedures in sampling plans, advanced process control concepts, economic design of process monitoring systems.

727. Reliability Estimation. Cr. 4

Prereq: I E 626. Reliability measures, failure distributions, reliability block diagrams, reliability estimation using exponential and Weibull distributions, sequential life testing and Bayesian reliability.

728. Reliability in Design. Cr. 4

Prereq: I E 626 and 752. Failure analysis and probabilistic design methodology. Design reliability computations for various distributions. Stress-strength dynamic models. Design reliability examples. Reliability optimization allocation. Trade-off analysis. Life cycle costing.

731. Case Studies in Production Systems. Cr. 4

Prereq: I E 732. A series of case studies concerning the design and operation of production systems for manufacturing and service organizations. Examples include production control, quality control and cost control systems.

732. Production Systems II. Cr. 4

Prereq: I E 531 or 631, 752 and 771. Advanced concepts in the design and operations of production systems for manufacturing and service organizations. Deterministic and stochastic forecasting, inventory control, production control and scheduling models.

736. Production Control Systems. Cr. 4

Prereq: I E 756 and 777. Fundamental concepts in the design and operation of manufacturing and service systems such as organization for production, facilities planning, forecasting, scheduling, inventory

control, labor control, quality control, materials management, and design of manufacturing systems.

744. Computer and Simulation Methods. Cr. 4

Prereq: I E 777 and computer programming experience. Computer and simulation methods in the analysis of management and production systems.

745. Management Information Systems Evaluation. Cr. 4

Prereq: I E 643 or 744 and 531 or 631 or 736. Analysis and design of management information requirements. Analysis of information requirements, design approaches, processing methods, data management and control of operations.

751. Case Studies in Operations Research. Cr. 4

Prereq: I E 752 and 771. Case studies which stress problem formulation, model formulation, data collection and solution implementation.

752. Optimization Methods. Cr. 4

Prereq: graduate standing. Introduction to optimization theory and optimization problems. Necessary and sufficient conditions for optimality. Research methods. Duality in optimization problems. Geometric programming.

753. Non-linear Optimization Methods. Cr. 4

Prereq: I E 752. Use of non-linear optimization methods to solve complex systems problems. Kuhn-Tucker necessary and sufficient conditions; non-linear programming algorithms; primal and dual methods; quadratic programming; penalty function methods. Algorithms to solve geometric programming problems.

754. Dynamic Programming and Optimal Control. Cr. 4

Prereq: I E 752. Applied dynamic programming methods, sequential decision processes, principle of optimality and Markov decision processes. Discrete and continuous optimal control problems. Pontryagin's maximum principle and its relationship to dynamic programming.

755. Network Methods. Cr. 4

Prereq: I E 752. Formulation and efficient solution techniques for network related problems. Basic graph theory. Algorithms for shortest path, maximal flow, Chinese postman, traveling salesman and set covering problems. Applications to vehicle routing, communications networks and locations.

756. Deterministic Management Systems Analysis. Cr. 4

Prereq: graduate standing in engineering. Use of mathematical models in management decisions. Formulation of descriptive and optimization models for deterministic systems. Linear, nonlinear and integer programming, transportation and network models as decision tools. Sensitivity analysis; applications to advertising, product mix, manpower and production scheduling, budgeting and facility location.

764. (C E 764) Economic Analysis in Transportation Systems Planning. Cr. 3

Prereq: I E 587 or C E 605 or 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.

771. Stochastic Service Systems I. Cr. 4

Prereq: I E 577 or 621. Advanced probability concepts and decision models. Functions of random variables, transforms and generating functions, Poisson process, order statistics, steady state and transient analysis of Markov chain models. Introduction to queueing models. Applications to reliability and quality control, inventory, transportation and emergency services.

772. Stochastic Service Systems II. Cr. 4

Prereq: I E 771. Queueing theory and its applications. Steady state analysis of single and multiple server queueing systems with Poisson and more general density functions. Transient analysis and heavy congestion approximations. Priority classes, queueing networks and optimal control of queues. Applications to emergency services, maintenance and production problems.

777. Stochastic Management Systems Analysis. Cr. 4

Prereq: graduate standing in engineering. Analysis and application of probabilistic models including Bernoulli, Poisson, and renewal processes, queueing theory, and decision analysis to study management, production, and planning problems.

781. Cost Control Systems. Cr. 4

Prereq: graduate standing. Advanced engineering economy, design and operation of cost control systems in manufacturing and service organizations. Design of systems to control labor, material and overhead costs.

782. Engineering Administration. Cr. 4

Prereq: I E 781. Basic concepts of engineering management as a process of organizing, planning, controlling and activating.

783. Case Studies in Management Systems. Cr. 4

Prereq: I E 736 and 782. Case studies in management as related to research, engineering, production, manufacturing and service systems.

790. Directed Study. Cr. 1-6

Prereq: written consent of adviser, chairperson and graduate officer for master's students; written consent of adviser, chairperson and Dean of Graduate Studies for Ph.D. students. 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.

795. Special Topics in Industrial Engineering II. Cr. 1-4

Prereq: consent of chairperson. Special subject matter in industrial engineering. Topics to be announced in *Schedule of Classes*.

796. Research. Cr. 1-6

Prereq: consent of adviser and chairperson; outline approved by instructor prior to registration for this course. Advanced design, investigation or experimental work.

799. Master's Essay Direction. Cr. 2

Prereq: consent of adviser.

810. Advanced Topics in Human Factors. Cr. 4

Prereq: I E 712. An in-depth study of the current literature in human factors research.

820. Advanced Topics in Reliability and Quality Control. Cr. 4

Prereq: I E 726 or 727. An in-depth study of current literature in reliability and quality control research.

830. Advanced Topics in Production Systems. Cr. 4

Prereq: I E 732. An in-depth study of the current literature in forecasting, inventory control, planning and scheduling research.

850. Advanced Topics in Optimization. Cr. 4

Prereq: I E 753 and 754. An in-depth study of current literature in linear and non-linear optimization research.

861. (C E 861) Transportation Engineering Systems Analysis. Cr. 3

Prereq: C E 763 or I E 577 or consent of instructor. 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.

- 870. Advanced Topics in Stochastic Systems. Cr. 4**
Prereq: I E 772. An in-depth study of the current literature in stochastic systems design research.
- 897. Seminar. Cr. 1-4**
Prereq: consent of adviser.
- 899. Master's Thesis Research and Direction. Cr. 1-8(8 req.)**
Prereq: consent of graduate adviser.
- 999. Doctoral Dissertation Research and Direction. Cr. 1-16**
Prereq: consent of chairperson and departmental graduate committee. No more than ten credits may be elected before doctoral candidacy is obtained. Offered for S and U grades only.

Mechanical Engineering (M E)

- 100. Introduction to Mechanical Engineering. Cr. 2**
Prereq: CSC 105. Research activities of faculty, history of the field, professional society activities, ethics, and product liability. Problem solving, team design projects, tours of engineering facilities, films, industrial tours and presentation of senior project results.
- 114. (E T 114) Engineering Graphics I. Cr. 2**
Theory and application of projection drawing; multiview drawing and sketching; pictorial drawing and sketching; sectional views; the basic techniques of dimensioning; charts and graphs.
- 115. (E T 115) Engineering Graphics II. Cr. 2**
Prereq: M E 114. 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 and revolution of lines and surfaces.
- 220. Thermodynamics I. Cr. 3**
Prereq: MAT 202. A study of the transformation of heat energy to other energy forms. Introduction to the basic concepts and laws of thermodynamics. Description of thermodynamic properties and processes for simple substances. Applications to energy conversion systems.
- 240. Statics. (C E 360). Cr. 3**
Prereq: MAT 202 and PHY 217. Basic concepts and principles of statics with application of Newton's Laws of Motion to engineering problems. Forces, moments, equilibrium, couples, freebody diagrams, trusses, frames, fluid statics, centroids, friction and area and mass moments of inertia.
- 320. Thermodynamics II. Cr. 3**
Prereq: M E 220. Applications of thermodynamics to flow and non-flow situations. Maxwell's relations. Composite properties of state. Irreversibility and availability in the analysis of systems. Combustion calculations. Chemical and phase equilibrium. Properties of mixtures. Energy transfer modes in real systems. Thermodynamic criteria for efficiency.
- 330. Fluid Mechanics. Cr. 4**
Prereq: MAT 204. Introduction to the nature and physical properties of fluids, fluid statics, equation of motion, incompressible inviscid flow, dimensional analysis, incompressible viscous flows, one-dimensional compressible channel flow.
- 340. Dynamics. Cr. 3**
Prereq: M E 240. Basic concepts and principles of dynamics with application of Newton's Laws of Motion to engineering problems. Kinematics and kinetics of particles and rigid and variable-mass bodies. Equations of motion, impulse-momentum principles, impact and work-energy principles.
- 341. Vibrations I. Cr. 4**
Prereq: M E 340. Fundamentals of dynamic principles, energy relation and Rayleigh's principle. Undamped and damped free vibration of one degree-of-freedom systems. Forced vibrations with harmonic excitation: vibration isolation, critical speeds of shafting, systems with two degrees of freedom. Introduction to vibrations of continuous media.
- 345. Manufacturing Processes I. (I E 335). Cr. 4**
Prereq: M E 360, MET 130. A study of the field of manufacturing processes from a mechanical engineering design standpoint. Topics include optimum mechanical design for cost, weight, stresses, energy, tolerances in such processes as forging, casting, welding and metal cutting. Metrology, automation, cutting forces and cutting speeds. Lab phase includes industrial plant visits, hands on experience in the machine shop with projects such as metal removal rates, cutting forces. Machine-tool demonstrations and films of manufacturing operations.
- 348. Design of Machine Elements. Cr. 4**
Prereq: M E 360. Analysis and design of common mechanical elements such as gears, springs, clutches, brakes, shafts, belts, bearings, etc. Problem laboratory for more complex design problems and for introduction to computer-aided design. Limitations on design imposed by safety, manufacturability, cost and material properties.
- 360. Elementary Mechanics of Materials. (C E 240). Cr. 3**
Prereq: M E 240 or C E 240. Elastic relationships between external forces acting on deformable bodies and the associated stresses and deformations; structural members subjected to axial load, torsion and bending; column buckling; combined stresses, repeated loads; unsymmetrical bending.
- 395. Special Topics in Mechanical Engineering. Cr. 2-4**
Prereq: consent of chairperson. Special subject matter in engineering. Topics to be announced in *Schedule of Classes*.
- 420. Heat Transfer. Cr. 3**
Prereq: M E 220. Fundamental concepts and the basic modes of heat transfer. The general equation of heat conduction. Steady state heat conduction on 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.
- 440. Analysis and Control of Dynamic Systems. Cr. 4**
Prereq: MAT 204 and M E 340. Mathematical modeling of linear, lumped, time-invariant systems. Open and closed loop systems. Single-input-single-output system design using frequency domain methods. Introduction to state-space concepts.
- 445. Mechanical Engineering Design I. Cr. 4**
Prereq: M E 348, 341, 330, 420, ECE 330; coreq: M E 440. Engineering analysis of design case histories through the application of familiar engineering principles and methods. Critical evaluation of previously designed systems, and recommendations for possible improvement, in written and oral student reports.
- 446. (I E 435) Manufacturing Processes II. Cr. 4**
Prereq: I E 322, MET 130, I E 335 or M E 345 or MET 260. Effect of process parameter selection on manufacturing process performance. Processes include casting, machining, welding, bulk deformation and sheet metal-working. Process parameters include materials, gating system, solidification rate, feed, speed, cutting forces, coolants, and weld size. Measures of performance include yield, tool life, surface

finish and dimensional tolerance.

450. Mechanical Engineering Design II. Cr. 4

Prereq: M E 348, 445. Students work in teams on a semester-long open-ended design project in which elements and subsystems are synthesized into larger systems. Formal written report required at the end of the project. Where applicable, hardware will be fabricated and tested.

490. Directed Study. Cr. 1-6(Max. 6)

Prereq: senior standing; consent of chairperson; outline of proposed study approved by instructor and chairperson prior to election of course. Supervised study and instruction in the field selected by the student.

491. Measurements, Instrumentation and Data Analysis Laboratory. Cr. 2

Prereq: ECE 330, ECE 331, M E 340, consent of chairperson. A laboratory experience in measuring the physical phenomena frequently encountered in the mechanical engineering field using modern instrumentation, transducers, recording methods and information signal processing data. Data analysis techniques and statistical data treatment applied to a variety of tests selected to illustrate mechanical engineering theory and practice.

493. Mechanical Systems and Test Planning Laboratory. Cr. 2

Prereq: M E 491 and consent of chairperson. A laboratory experience in planning and conducting tests on a complete mechanical engineering system. Separate system experiments conducted by the students in the fields of fluids, thermodynamics, dynamics and controls. Classic, analog and parametric test plans used to collect and analyze data and report test results.

500. Engineering Analysis I. Cr. 4

Prereq: MAT 204 and senior standing. Applications of ordinary differential equations. The method of Frobenius, Bessel functions, Legendre polynomials. Orthogonality of characteristic functions. Fourier series and Fourier integrals. Characteristics and solutions of partial differential equations. Method of separation of variables. Applications to initial and boundary value problems in engineering.

501. Engineering Analysis II. Cr. 4

Prereq: MAT 204 and senior standing. Basic operations of complex numbers. Analytic functions and Cauchy-Riemann conditions. Cauchy and Goursat theorem. Residue theorem. Conformal mapping and its applications. Schwarz-Christoffel transformation. Basic properties of the Laplace transformation. Convolution integral. Applications to mechanical and electrical engineering problems.

503. Finite Difference Methods in Mechanical Engineering. Cr. 3

Prereq: MAT 204. Finite difference techniques for the solution of ordinary and partial differential equations in mechanical engineering. Study of problems in steady and transient heat conduction, beam bending and vibrations, elastic stress analysis, plate bending and fluid mechanics.

504. Finite Element Methods I. Cr. 4

Prereq: M E 503 or equiv. Introduction to finite element methods. Energy theorems, variational methods, review of equations from solid mechanics, displacement model of a single element, assemblage of elements. Detailed examples of problems in structural analysis, in part using the NISA general purpose computer code. Plane strain and plane stress elements, solid elements.

506. Perturbation Methods in Engineering. Cr. 3

Prereq: MAT 204. Study the use of asymptotic methods in solving engineering problems. Regular and singular perturbations. Strained coordinates variations of parameters, methods of averaging, turning point problems. Applications in the solid and fluid mechanics areas.

508. Dynamics of Problem Solving. (I E 508). Cr. 3

Prereq: MAT 204. Introduction to problem solving techniques, probability and information theory, modeling in engineering, physical and social sciences, decision-making, optimization and dynamic system models.

510. Engineering Physiology. (ECE 510) (I E 510). Cr. 4

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 by simple mathematical models when feasible.

515. (ECE 615) Bioelectronics I. Cr. 2

Prereq: ECE 618 or consent of instructor. Investigation of an approved research project in the area of bioelectronics.

516. Biomechanics I. (ECE 516) (I E 516). Cr. 4

Prereq: M E 340 or consent of instructor. Mechanics applied to biological systems. Static and dynamic analysis of bone, muscle and joints. Impact biomechanics, including experimental simulation of automotive collision, instrumentation and data analysis.

520. Intermediate Thermodynamics. Cr. 4

Prereq: M E 320 or equiv. Advanced treatment of fundamental laws, maximum principles for entropy and Maxwell equations. Properties of real gases. Chemical equilibria; combustion.

522. Properties of Fluid Materials. (CHE 522). Cr. 2

Prereq: senior standing. Development of formulas and correlations for estimating thermodynamics and transport properties of fluids in terms of atomic and molecular properties. Energy distribution and mean free path concepts are introduced and applied for this purpose.

523. Plasma Dynamics. Cr. 3

Prereq: M E 340. Properties of natural and laboratory-produced plasmas, orbits of charged particles in fields, collisions. Coulomb scattering and diffusion of particles, collection phenomena in cold and hot plasmas, wave motion and stability, derivation of M.H.D. equations, applications to power generation, space propulsion and astronomy.

524. Industrial Combustion Systems. (CHE 524). Cr. 3

Prereq: M E 420 or CHE 350 or consent of instructor. Introduction to operating principles and design features of modern boilers, furnaces, gas turbine combustors, and advanced continuous combustion systems. Application of basic thermodynamics and heat transfer calculations to testing and design.

530. Intermediate Fluid Mechanics. Cr. 4

Prereq: M E 330. Introduction to continua. Integral and differential equations of motion. Ideal flow theory. Flow over blunt bodies. Introduction to boundary layer. Sound waves. Compressible flows.

531. Topics in Fluid Mechanics. Cr. 4

Prereq: M E 330. Review of fundamental concepts. Measurements and experimentation techniques. Drag calculations and vehicle aerodynamics, turbomachinery, airfoil theory and fluidics.

533. Applied Polymer Rheology. (CHE 533). Cr. 4

Prereq: M E 330, 360. Flow properties of polymer solutions; methods of measuring fundamental rheological parameters using viscometric devices; the prediction of material properties from theoretical principles. Correlation between theoretical and experimental results.

537. Vehicle Aerodynamics. Cr. 3

Prereq: M E 330 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.

539. Lubrication and Bearings. Cr. 4

Prereq: M E 330. Comprehensive studies of the theory and principles of lubrication and their application to major types of bearings. Bearing selection and gas bearing stability.

540. Dynamics II. Cr. 4

Prereq: M E 340. Kinematics and rigid bodies in space. Classical particle solutions: central force, motion on a surface of revolution, spherical pendulum. Energy and momentum integrals. Equations of motion in general rotating coordinate frames. Euler angles, angular momentum and kinetic energy of rigid bodies. Fixed point motion, steady solutions. Applications to spatial motions of rigid bodies.

541. Vibrations II. Cr. 4

Prereq: M E 341. Multidegree-of-freedom systems. Eigenvectors and eigenvalues and orthogonality of normal modes. Mode-summation method. Solution to forced vibrations by Laplace transforms, numerical methods and Continuous Systems Modeling Program (CSMP). Rayleigh's principle and Dunkerley formula for approximate frequencies. Torsional geared and branched systems. Log ranges equations. Vibration of continuous systems: longitudinal and transverse vibrations of beams; torsional vibrations, vibrating string and membranes.

543. Dynamics of Machinery. Cr. 3

Prereq: M E 540, 541. Applications of dynamics of rigid bodies to elements of machinery. Load transfer, bearing reactions and balancing of mechanisms such as three- and four-bar linkages, eccentric drives, cam mechanisms, articulated drive mechanisms (Hooke Joints) and rotors.

544. Industrial Noise Control. Cr. 4

Prereq: senior standing or consent of instructor. Nature and origin of noise in mechanical systems and design for their control. Noise measurement techniques and noise reduction methods.

545. Fundamentals of Vehicle Design. Cr. 3

Prereq: senior standing. Design, analysis and synthesis of passenger vehicles and their major subsystems.

546. Fundamentals of Acoustic Radiation. Cr. 4

Prereq: senior or graduate standing. Theory of sound generation and propagation. Acoustic source models, wave theory, principles of transducers and speakers. Architectural acoustics.

551. Optimum Design of Mechanical Systems I. Cr. 4

Prereq: M E 345 or equiv. Analytical and numerical methods for the optimum design of mechanical systems. Linear programming; simplex, exhaustive search, method of steepest descent, Lagrange multipliers. Introduction to geometric programming. Practical examples in the design of machines and structures.

552. Computer Aided Design in Mechanical Engineering. Cr. 4

Prereq: ability in Fortran programming. Formulation of practical mechanical engineering problems in dynamics, structures, fluids, kinematics, heat transfer. Use of computer graphics terminals and existing software packages (DRAM, CSMP) during the design process.

553. Mechanism Design. Cr. 4

Prereq: senior standing. Kinematics and dynamics of mechanisms including linkages, cams, universal joints, etc. Balancing, synthesis of mechanical systems. Introduction to computer-aided design and computer graphics facilities.

554. Vehicle Dynamics. Cr. 3

Prereq: senior standing. Analysis of the ride and handling characteristics of vehicles using linear models.

555. Modeling and Control of Dynamic Systems. Cr. 4

Prereq: M E 440 or consent of instructor. Modeling and analysis of physical systems comprised of interconnected mechanical, electrical,

hydraulic and thermal devices; bond graphs; introduction to state-space equations and closed loop system dynamics.

560. Advanced Mechanics of Materials. Cr. 4

Prereq: M E 360. Statically indeterminate problems. Force method. Displacement methods. The three-moment equation. Euler formulas for columns. Column formulas for concentric and eccentric loadings. Energy methods and applications. Unsymmetrical bending of beams. Shear center. Bending of curved bars. Thick-walled cylinders. Torsion of non-cylinders. Rotating discs. Torsion of non-circular shafts. Membrane analogy.

564. Applied Plasticity. Cr. 4

Prereq: M E 360. Introduction to the theory of plasticity. General approach to stress analysis in plasticity. Empirical equation to stress-strain curves. Three-dimensional stress system. Mohr's circles for three-dimensional stress systems. Yield criteria of metals. Prandtl-Reuss equations. Levy-Mises equations. Methods of determining work-hardening characteristics. Elementary analyses of the elastic-plastic bending of beams, rings and plates. Elastic-plastic problems with spherical or cylindrical symmetry. Mechanics of metal forming.

566. Introduction to Plates and Shells. Cr. 4

Prereq: M E 360 and senior standing. Symmetrical and unsymmetrical bending of circular plates. Bending of rectangular plates. Various approximate methods. Membrane theory of shells of revolution. Bending of cylindrical and spherical shells. Applications to pressure vessels.

570. Introduction to Continuum Mechanics I. Cr. 4

Prereq: MAT 507. Cartesian tensor analysis, integral theorems, invariants. Kinematics: material derivative, transport theorem, streamlines, associated theorems, motion gradient and deformation measures; material derivative, transport theorem; stretching and spin; vorticity and circulation. Balance postulates: mass, linear momentum, angular momentum, energy. Constitutive equations: invariance, material isotropy group.

571. Introduction to Continuum Mechanics II. Cr. 4

Prereq: M E 570. Constitutive equations for nonlinear elastic solids and Newtonian fluids: invariance requirements, objectively equivalent motions, polynomial approximations. Continuum thermodynamics: energy, entropy, heat flux. Clausius-Duhem inequality, equation of state, heat conduction equations. General theorems.

580. Combustion Engines. Cr. 4

Prereq: M E 320 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.

581. Combustion and Emissions. Cr. 4

Prereq: M E 580; 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.

582. Thermal Environmental Engineering. Cr. 4

Prereq: M E 320 and 420. Design and analysis of heating, ventilating and air-conditioning systems. Moist air properties calculations, heat transfer and transmission coefficients, heating load, cooling load, heating equipment and cooling equipment, duct design, fans, air distribution, systems design and analysis, refrigeration principles.

583. Solar Energy Utilization and Energy Conservation in Building. Cr. 4

Prereq: M E 582 or consent of instructor. Solar radiation characteristics of opaque materials and partially transparent material, flat plate solar collector analysis, energy storage, analysis and design of solar water heating, solar heating and cooling systems, solar assisted heat pump system, economics of solar system, energy analysis of building operations; energy conservation by design of building envelope, by design of air conditioning system, by operating practices.

584. Air Pollution Control. Cr. 4

Prereq: M E 320. Effects and sources of air pollutants, regulatory legislation and trends, meteorology, particulate controls, control of sulfur oxides and oxides of nitrogen from stationary sources, odor control, mobile sources.

586. (CHE 586) Elements of Nuclear Engineering. Cr. 3

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.

595. Special Topics in Mechanical Engineering I. Cr. 1-4

Prereq: consent of chairperson. Maximum of four credits in Special Topics may be elected in any one degree program. Topics to be announced in *Schedule of Classes*.

597. Combustion Engines Laboratory. Cr. 3

Prereq: M E 320, 330. Laboratory experience in determining emission, power and economy characteristics of internal combustion engines as influenced by operating and design variables.

618. (ECE 618) Bioinstrumentation. Cr. 4

Prereq: ECE 330 and M E 510. Engineering principles of physiological measurements. Signal conditioning equipment, amplifiers, recorders and transducers. Recent advances.

660. (CHE 660) Fusion Engineering. Cr. 2

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.

Courses Limited to Graduate Students

702. Finite Element Methods II. Cr. 4

Prereq: M E 504. Continuation of M E 504. Isoparametric elements, plate and shell elements. Dynamic analysis of structures. Hybrid variational techniques. Applications to solid mechanics, incompressible materials, heat transfer and fluid mechanics. Pre- and post-processing, use of computer graphics in analysis.

703. Advanced Finite Element Analysis I. Cr. 4

Prereq: M E 702 or equiv. Study of advanced concepts and current technical literature dealing with finite element analysis in mechanics. Use of the MOVIE, BYU and PLOT 10 graphics packages, and the DEC PDP 11/34 minicomputer.

704. Advanced Finite Element Analysis II. Cr. 4

Prereq: M E 703. Continuation of M E 703. Boundary integral equation methods. Hybrid techniques involving finite element-boundary integral methods. Finite element analysis of manufacturing processes.

710. Mathematical Modeling in Bioengineering. (ECE 710) (I E 710). Cr. 4

Prereq: M E 510. Mathematical models that simulate physiological or anatomical function. Models of the nervous and vascular systems, models for impact acceleration and current topics.

711. (I E 711) Human Factors and Ergonomics. Cr. 4

Prereq: graduate standing in engineering. Functional anthropometry, kinesiology, work physiology, sensory systems. Interaction with the environment. Manned systems design.

712. (I E 712) Human Factors in Systems. Cr. 4

Prereq: I E 627, I E 711. Human factors in design, evaluation and maintenance design applications in human factors. Detailed theoretical and methodological consideration of man as a system component.

713. (I E 713) Health and Safety Engineering. Cr. 4

Prereq: M E 711. Models of overload capacities of human functions; audition, vision, respiration. Thermal, chemical, mechanical environments. Design of work processes, practices, and equipment.

714. (I E 714) Human Engineering and Product Liability. Cr. 4

Prereq: consent of instructor. Human factors considerations in product design. Minimization of health and injury hazards in product use and misuse. Legal considerations in product liability. Case studies.

715. (ECE 715) Bioelectronics II. Cr. 2

Prereq: M E 515. Continuation of M E 515.

716. Biomechanics II. (ECE 716) (I E 716). Cr. 4

Prereq: M E 516. Biomechanical response of bone, muscle, skin, artery and other soft tissues to load or deformation. Structural and physiological response of body systems to impact and steady state vibration. Biofluid mechanics of blood flow. Gait analysis.

717. (ECE 717) Electrophysiology. Cr. 3

Prereq: M E 510 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.

718. (ECE 718) Bioelectromagnetics. Cr. 4

Prereq: ECE 510 and ECE 580 or consent of instructor. Studies of effects and potential health hazards of microwave radiation from electronic products and diagnostic and therapeutic devices. Emphasis on the mechanisms and methods of measurement. Consideration of biomedical applications.

719. (ECE 719) Topics in Biomedical Engineering. Cr. 3

Prereq: consent of instructor. Seminar course covering current research problems in bioengineering and ergonomics. Weekly presentations are made by students, faculty and outside speakers. Members of the faculty attend and take responsibility for leading the discussions.

720. Advanced Thermodynamics for Mechanical Engineers. Cr. 4

Prereq: M E 320 or consent of instructor. Postulational basis of thermodynamics; potentials and transformation theory; method of calculating properties from basic data. Introduction to statistical thermodynamics; calculation of properties of gases and plasmas; equilibrium mixture calculations. Advanced energy analysis of systems.

722. Molecular Theory of Thermodynamics and Transport Processes in Fluids. Cr. 4

Prereq: M E 522 or consent of instructor. Introduction to concepts and equations relating the laws and parameters of thermodynamics, fluid dynamics and heat transfer to molecular properties. Examples in which the fluctuation of physical variables is important are given; the use of the probability distribution for these variables is developed.

723. Advanced Kinetic Theory of Plasmas. Cr. 3

Prereq: M E 522. 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.

724. Processes in Continuous Combustion Systems. (CHE 724). Cr. 4

Prereq: M E 524/CHE 524 or consent of instructor. Introduction to the physical processes in steady, burner-supported flames in furnaces, open burners and combustors. Premixed and diffusion type, laminar and turbulent type flames for all fuel types will be treated; some models will be developed.

725. Radiative Heat Transfer. Cr. 4

Prereq: M E 420. The fundamental laws of energy transfer by radiation. Statistical mechanics. Derivation of the black-body function. Radiative transfer through transparent media. The equation of transfer for absorbing and emitting media. Isothermal, variable temperature and radiative equilibrium conditions. Coupling of radiation, conduction and convection.

726. Heat and Mass Transfer. Cr. 4

Prereq: M E 420. Formulation of heat and mass transfer problems; lumped, differential and integral formulations. Solution of problems using the method of separation of variables, partial solutions, variation of parameters, superposition and Laplace transformation. Applications in different thermal and combustion systems.

729. Advanced Combustion and Emissions I. Cr. 4

Prereq: M E 320 and 420 or consent of instructor. Flame propagation theories, structure or pre-mixed hydrocarbon flames, mathematical formulations for flame propagation and emission formation in homogenous mixtures in engines.

730. Advanced Fluid Mechanics. Cr. 4

Prereq: M E 530 or consent of instructor. Tensor derivation of conservation laws, transport theorem. Thermodynamics of continuous media and constitutive equations. Kinematics of vorticity, dynamics of flows; perfect fluids, compressibility effects.

740. Advanced Dynamics. Cr. 4

Prereq: M E 540. Generalized coordinates, classification of dynamical systems with finite degrees of freedom. Lagrange's equations for rheonomic, non-holonomic systems. Ignorable coordinates, Jacobi's integral, dissipative systems. Hamilton's equations, small oscillations about steady solutions, and introduction to stability.

741. Vibrations of Continuous Systems. Cr. 4

Prereq: M E 541. 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.

742. Random Vibrations. Cr. 4

Prereq: M E 541. Mathematical description of stochastic processes. Response analysis of mechanical systems. Frequency response, spectral density, filters.

745. Advanced Methods in Vehicle Dynamics. Cr. 3

Prereq: M E 540. Constraint equations of surface vehicles; dynamic analysis of automobiles, cycles, rail cars and air cushion vehicles. Problem formulation and solution methods.

746. Advanced Acoustic Radiation. Cr. 4

Prereq: M E 500 or equiv., 546 or consent of instructor. Advanced theoretical treatment of sound generation and transmission with exact and approximate theories.

750. Advanced Mechanisms. Cr. 4

Prereq: M E 553. Analysis and synthesis of high speed machinery: elastodynamics, vibrations, dynamic stability. Modeling of joints, balancing, optimization studies, computer-aided design techniques.

751. Optimum Design of Mechanical Systems II. Cr. 4

Prereq: M E 551 or equiv. or consent of instructor. Advanced methods for determination of globally optimal design of mechanical systems. Monotonicity analysis and partial optimization, logarithmic and semi-logarithmic derivatives and polynomials. Geometric programming, condensation, dual geometric programming. Conditional design and constraint activity, signomials. Conservation and global optimization. Transcendental systems. Problem of standard sizes, lexical arithmeter.

755. Control of Dynamic Systems. Cr. 4

Prereq: M E 555 or consent of instructor. Analysis and control of linear dynamic systems using state-space equations; stability, controllability, observability, modal control. Analysis and synthesis of nonlinear systems; describing functions, limit cycles, stability, introduction to adaptive control.

761. Theory of Elasticity I. Cr. 4

Prereq: M E 560. 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.

763. Elastic Stability I. Cr. 3

Prereq: M E 540 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.

764. Theory of Plasticity I. Cr. 3

Prereq: M E 571 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.

766. Theory of Plates. Cr. 4

Prereq: M E 360 and MAT 204. Bending of isotropic and orthotropic plates, continuous plates, plates of variable thickness, various approximate methods.

770. Advanced Continuum Mechanics. Cr. 3

Prereq: M E 571. 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.

771. Theory of Rods. Cr. 3

Prereq: M E 571 and 770 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 of Hay.

772. Theory of Elastic Shells. Cr. 4

Prereq: M E 761 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.

790. Directed Study. Cr. 1-4(Max. 4)

Prereq: written consent of adviser, chairperson and engineering graduate officer for master's students; written consent of adviser,

chairperson and Dean of Graduate Studies for Ph.D. students. Student selects some field of engineering for advanced study and instruction.

795. Special Topics in Mechanical Engineering II. Cr. 1-4

Prereq: consent of chairperson. Maximum of six credits in Special Topics in any one degree program. A consideration of special subject matter in engineering. Topics to be announced in *Schedule of Classes*

796. Research. Cr. 1-4(Max. 4)

Prereq: consent of chairperson and adviser. A combined experimental and analytic study of a problem in a special field of engineering.

822. Advanced Molecular Theory of Fluids. (CHE 822). Cr. 4

Prereq: M E 722 or CHE 522 and CHE 720 or consent of instructor. Kinetic equation descriptions of non-reacting gases, fuel sprays, plasmas, aerosols and dusts are developed. Special results such as transport coefficients for gases and plasmas, slip flow solutions and flame speeds are obtained. The relationship between kinetic equations and macroscopic descriptions of transport processes is given.

825. Advanced Radiative Heat Transfer in Gases. Cr. 3

Prereq: M E 522 and 725. 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.

826. Convective Heat Transfer. Cr. 4

Prereq: M E 730. Prandtl's approximation and boundary layer equations. Introduction to turbulence. Solutions for velocity and temperature distributions for external flows with and without pressure gradients. Approximate integral methods for momentum of energy. Natural convection. High speed flows and compressibility effects. Numerical solutions of 2-D and 3-D boundary layers. Recent developments in heat transfer calculations.

827. Hypersonic Gas Dynamics. Cr. 3

Prereq: M E 530. 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.

828. High Temperature Gas Dynamics. Cr. 3

Prereq: M E 726 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 magnetogasdynamic 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.

829. Advanced Combustion and Emissions II. Cr. 4

Prereq: M E 729 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.

830. Incompressible Flow Theory. Cr. 4

Prereq: M E 730. Perfect flow theory. Conformal mapping, Helmholtz theorems. Linearized potential flow theory, airfoil theory. Introduction to viscous incompressible flow. Stokes and ocean flow.

833. Compressible Flow. Cr. 4

Prereq: M E 730. One-D isentropic flow, shock waves, 2-D and 3-D steady subsonic flow, transonic flow, supersonic flow and hypersonic

flow, method of characteristics, higher-order theories.

834. Magneto hydrodynamics. Cr. 4

Prereq: M E 730. Interaction of EM forces with fluids; Ohm's law for conducting fluid and MHD approximation. Waves, MHD flows over thin bodies, momentum and thermal boundary layers of MHD flows, MHD channel flow and power generation.

835. Geophysical Fluid Mechanics. Cr. 4

Prereq: M E 730. Introduction to the equations of stratified, rotating flows. General solutions of theorems. Rossby, Gravity and Lee Waves, Baroclinic and Barotropic Convection. Instability Ekman Layers. Energetic of geophysical flows.

836. Viscous Flow. Cr. 4

Prereq: M E 730. Introduction to Boundary Layer Theory. Similar solutions and approximate techniques. Viscous flow over 2-D and 3-D bodies, drag and waves, viscous channel flow. Unsteady viscous flows, compressible flows with viscous effects.

838. Hydrodynamic Stability. Cr. 4

Prereq: M E 730. Introduction to the concept of stability. Inviscid instability of shear flows, centrifugal flows and thermo-convective systems. Stability of viscous flows. Stability of unsteady flows. Bifurcation theory.

840. Advanced Dynamics II. Cr. 4

Prereq: M E 740. Rigid body dynamics in a three-space. The theory of the gyroscope; special topics of analytical mechanics and variational principles for dynamical systems; contact transformations; Poisson's brackets, Hamilton-Jacobi equations.

848. Nonlinear Vibrations and Control. Cr. 3

Prereq: M E 755. Equations of state of non-linear systems; approximate methods of solution describing function, harmonic balance; method of Van der Pol; criteria of stability of motion; Poincare's method of singular points. Applications to control theory, especially adaptive controls.

861. Theory of Elasticity II. Cr. 4

Prereq: M E 570 or consent of instructor. Kinematics of deformation: Green, Cauchy and St. Venant strain tensors and geometric interpretation; strain ellipsoids, general rotation tensor, mean rotation. Compatibility. Rate measures. Balance principles: mass, momentum, energy; entropy production inequality. Constitutive relations; invariance principles, material anisotropy. Thermodynamics of deformation, nonlinear non-isothermal theory of hyperelasticity. General theorems.

862. Theory of Elasticity III, Cr. 4

Prereq: M E 570 or consent of instructor. Classical linear elastostatics: theorems on existence and uniqueness; inequalities; stress functions of Finzi, Galerkin and Papkovitch-Neuber. Fundamental solutions of Kelvin, Boussinesq and Mindlin; integral representations of solutions; St. Venant's principle. Classical linear elastodynamics: Poisson and Lamé solutions, Sternberg's theorem; wave propagation; Love, Rayleigh and Lamb. Finite deformation, general theorems for nonlinear behavior.

863. Elastic Stability II. Cr. 3

Prereq: M E 763. 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.

864. Theory of Plasticity II. Cr. 4

Prereq: M E 764. Theory of work-hardening materials; models of hardening behavior; plastic dissipation and material stability; extremum principles. Anisotropic plasticity. Plastic wave propagation. Viscoplasticity.

Thermal Stress Analysis. Cr. 4

Prereq: M E 570 or consent of instructor. Field equations, kinematics, constitutive equations for three-dimensional theories of thermoelasticity and thermoviscoelasticity, boundary value problems, solution techniques, application of finite element methods.

866. Applied Theory of Shells. Cr. 4

Prereq: M E 772 or consent of instructor. Membrane theory of shells of revolution and cylindrical shells. 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. Methods of solution.

867. Viscoelasticity. Cr. 4

Prereq: M E 570 or consent of instructor. Material behavior of polymers, plastics and structural materials at elevated temperatures. Integral constitutive equations, three-dimensional linear theory using Stieltjes convolutions. Correspondence principle, integral theorems, stress functions. Harmonic oscillations, wave propagation, dynamic loading.

895. Special Topics in Mechanical Engineering III. Cr. 1-4

Prereq: consent of chairperson. Maximum of six credits in Special Topics in any one degree program. A consideration of special subject matter in engineering. Topics to be announced in *Schedule of Classes*

899. Master's Thesis Research and Direction. Cr. 1-8(8 req.)

Prereq: consent of adviser.

997. Doctoral Seminar. Cr. 2-6(Max. 6)

Prereq: consent of doctoral adviser; coreq: M E 999.

999. Doctoral Dissertation Research and Direction. Cr. 1-16

Prereq: consent of doctoral adviser; coreq: M E 997. No more than ten hours may be elected before doctoral candidacy is obtained. Offered for S and U grades only.

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 chairperson.

130. Science of Engineering Materials. Cr. 4

Prereq: CHM 107; prereq. or coreq: MAT 201. Material fee as indicated in *Schedule of Classes*. 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.

260. Introduction to Metallurgical Engineering. Cr. 3

Prereq: MET 130; PHY 218. 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.

330. Metallurgical Thermodynamics. Cr. 3

Prereq: CHE 230. The applications of thermodynamics to metallurgical systems; emphasis on phase equilibria in one-component systems, the thermodynamics of solutions, and the relationships between free energy-composition diagrams and phase diagrams in binary and multi-component systems.

340. Physical Metallurgy I. Cr. 4

Prereq: MET 260; coreq: 330. Detailed understanding of relationships between structure and properties of metals and alloys, and of the principles of microstructural control. Crystallography, methods of structural analysis, crystal defects and interfaces, diffusion, and nucleation. Course is continued in MET 360.

342. Physical Metallurgy Laboratory I. Cr. 1

Prereq. or coreq: MET 340. Material fee as indicated in *Schedule of Classes*. Laboratory investigations of topics covered in MET 340 and related areas.

351. Co-op Experience. Cr. 1

Prereq: admission to co-op program. Open only to students with an industrial sponsor. Oral and written reporting to peer group describing co-op experience. Required attendance at MET seminar series for the semester.

360. Physical Metallurgy II. Cr. 3

Prereq: MET 340. Continuation of MET 340, with applications to phase transformations and related phenomena in physical metallurgy. Solidification, recovery and recrystallization, precipitation from solid solutions, diffusion-controlled and martensitic phase transformations.

362. Physical Metallurgy Laboratory II. Cr. 1

Prereq or coreq: MET 360 and 370. Material fee as indicated in *Schedule of Classes*. Laboratory investigations of topics covered in MET 360 and MET 370 and related areas.

370. Mechanical Behavior of Metals. Cr. 3

Prereq: MET 260. 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.

400. Modern Methods of Structural Analysis. Cr. 3

Prereq: MET 260. Material fee as indicated in *Schedule of Classes*. Introduction to x-ray crystallography, diffraction theory and its applications, the stereographic projection, pole figures, twinning, crystal orientation and line broadening. Introduction to reciprocal lattice in solution of crystallographic problems.

426. Senior Project I. Cr. 2

Prereq: consent of chairperson. Material fee as indicated in *Schedule of Classes*. Organization of a research project: literature survey; equipment specification; presentation of a written proposal; and initiation of the the laboratory investigation.

430. Processing and Fabrication of Metals. Cr. 3

Prereq: MET 360 and 370. 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.

450. Materials Selection and Design. Cr. 3

Prereq: MET 360 and 370. Application of engineering and science background to the design of equipment and processes. Comprehensive problems dealing with data sources, design principles and economics.

460. Principles of Extractive Metallurgy. Cr. 3

Prereq: MET 330. 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.

486. Senior Project II. Cr. 2

Prereq: MET 426. Material fee as indicated in *Schedule of Classes*. Completion of the laboratory investigation begun in MET 426. Preparation of a comprehensive written report on the research project. Final oral report to the department staff.

Undergraduate Elective Courses

490. Directed Study. Cr. 1-6

Prereq: consent of chairperson. Student selects some field of metallurgical engineering for advanced study and instruction.

494. Engineering Experience Report. Cr. 1-3(Max. 3)

Prereq: consent of department chairperson 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

509. Physical Ceramics. (CHE 509). Cr. 3

Prereq: MET 260 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.

535. (CHE 535) Polymer Engineering I. Cr. 2

Prereq. or coreq: MAT 204. 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.

537. (CHE 537) Polymer Engineering Laboratory. Cr. 1

Prereq. or coreq: CHE 535 or MET 535. 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.

550. Diffusion in Solids. Cr. 3

Prereq: MET 360, MAT 204 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 correlation effects.

560. Composite Materials. (CHE 560). Cr. 3

Prereq: MET 370 or consent of instructor. Principles and applications of high-strength composite materials, with particular emphasis on fiber-reinforced metals and plastics. Design of reinforced materials to replace conventional metals and alloys.

561. Science of Materials. (CHE 561). Cr. 3

Prereq: PHY 218 or equiv. Introduction to physical models representing solid state phenomena. Wave propagation in a lattice, including elastic, light and electron waves. Includes specific heats, optical phenomena, band theory, dielectric properties, magnetism and ferro-electricity; classical and quantum statistics and reciprocal lattice concepts.

562. Electron Microscopy. Cr. 2

Prereq: MET 360 or consent of instructor. Theory and practice of electron image formation, sample preparation, diffraction principles and interpretation of effects.

563. Cast Ferrous Alloys. Cr. 3

Prereq: MET 360. Advanced study of the properties of ferrous castings and solidification mechanism.

565. Metal Surfaces. Cr. 3

Prereq: MET 260, 330. An introduction to the science and technology of surface phenomena, including surface structure, surface energy,

surface diffusion, crystal growth and selected application technological importance.

580. Powder Metallurgy. Cr. 3

Prereq: MET 360. Basic analysis of the various processing steps involved in the manufacture of products from metal powders including powder manufacture, compaction and sintering of metal powders at the forming of powder metallurgy (P/M) preforms.

585. (CHE 585) Vacuum Technology. Cr. 2

Prereq: PHY 218 or consent of instructor. Vacuum technique, flow of gases through tubes and orifices, operation of pumps and manometers, vacuum materials, vacuum systems.

586. (CHE 586) Elements of Nuclear Engineering. (M E 586). Cr. 3

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.

595. Special Topics in Metallurgical Engineering I. Cr. 1-4

Prereq: consent of department chairperson. 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*.

603. Failure of Metals. Cr. 3

Prereq: MET 486 or consent of chairperson. Failure and defects of metals, their origin, causes and elimination. Emphasis on failure analysis by case histories.

611. Fabrication and Joining Processes. Cr. 3

Prereq: MET 430. Advanced analysis of physical phenomena associated with joining and forming. Basic process 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.

635. (CHE 635) Polymer Engineering II. Cr. 2

Prereq: MAT 204. A detailed analysis of polymer processing. Rheology of polymers, flow in tubes, calendaring, extrusion, injection molding, surface phenomena and polymer crystallization.

650. Fatigue and Fracture of Metals. Cr. 3

Prereq: MET 370. A detailed examination of the ways in which engineering materials fail under both static and cyclic loading conditions. Emphasis is on the metallurgical aspects of failure and the underlying mechanisms of fracture and fatigue.

659. Phase Equilibria. Cr. 2

Prereq: MET 360 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.

665. (CHE 665) Electrochemical Engineering. Cr. 2

Prereq: CHM 544, CHE 380 and CHE 340. 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.

675. (CHE 675) Heterogeneous Equilibria. Cr. 3

Prereq: MET 330. An intermediate study of the phase diagrams of importance in chemical and metallurgical engineering and of the principles involved in such equilibria.

685. Corrosion. (CHE 685). 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.

710. (CHE 710) Advanced Engineering Mathematics. Cr. 3

Prereq: MAT 519 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.

720. Phase Transformations I. Cr. 3

Prereq: MET 360. An advanced treatment of phase transformations, based on thermodynamics, kinetics and crystallography. Nucleation, basic mechanisms of transformations, and applications of statistical mechanics.

730. Thermodynamics of Alloys. Cr. 3

Prereq: MET 330. 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.

740. Mechanical Metallurgy. Cr. 3

Prereq: MET 370. Analysis of elastic and plastic deformation of single crystals and polycrystalline materials, emphasizing the relations between metallurgical microstructure and material properties.

750. Advanced Metallurgical Thermodynamics. Cr. 3

Prereq: MET 730. An advanced study of the applications of thermodynamic principles to metallurgical processes and products.

760. Phase Transformations II. Cr. 3

Prereq: MET 720. A continuation of MET 720 with emphasis on pearlite and martensite reactions.

780. Physical Metallurgy of Tool Steels. Cr. 3

Prereq: MET 360. Manufacture, physical and mechanical testing, principles of heat treating, properties and selection, alloying elements as related to physical metallurgy of tool steels.

790. Directed Study. Cr. 1-6

Prereq: written consent of adviser, chairperson and graduate officer for master's students; written consent of adviser, chairperson and Dean of Graduate Studies for Ph.D. students. Library investigation of an approved project in metallurgical engineering. Independent study, conferences with supervisor and preparation of a comprehensive report.

795. Special Topics in Metallurgical Engineering. Cr. 1-4

Prereq: consent of chairperson. 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*.

809. Advanced Physical Ceramics. Cr. 3

Prereq: MET 509. Advanced and theoretical topics in non-metallic materials. Topics in sintering and pressing, sintering in the presence of a liquid phase, structure of ceramics.

815. (CHE 815) Advanced Nuclear Engineering. Cr. 2

Prereq: MET 586 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.

821. Diffraction Theory in Materials Science. Cr. 2

Prereq: MET 360 and 400. Advanced diffraction methods in materials science. Principles generally applicable to both x-ray and electron diffraction.

835. (CHE 835) Polymer Engineering III. Cr. 2

Prereq: CHE 535 or MET 535 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.

837. Principles of Steel Making. Cr. 2

Prereq: MET 460 and 750 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.

880. Modern Physical Metallurgy. Cr. 3

Prereq: consent of chairperson. An advanced study of the theories of the metallic state and of solid state reactions in alloy systems. Problems and reports.

896. Research. Cr. 1-6

Prereq: consent of chairperson 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.

897. Seminar. Cr. 1

Prereq: consent of chairperson.

899. Master's Thesis Research and Direction. Cr. 1-6(10 req.)

Prereq: consent of adviser.

999. Doctoral Dissertation Research and Direction. Cr. 1-16(Min. 32)

Prereq: consent of chairperson of departmental graduate committee. No more than ten credits may be elected before doctoral candidacy is obtained. Offered for S and U grades only.

DIVISION OF ENGINEERING TECHNOLOGY

Office: 4855 Fourth Avenue

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Professor

Howard M. Hess (Emeritus)

Associate Professors

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Ernest C. Carpenter, Kenneth J. Christensen, Matthew J. Diedzic, Jr., Charles D. Durrett, Jr., James W. Evans, Elihu Geer, Abd-Elhamid Hamdi, M. Dale Jordan, Michael F. Kowalski, Hugh J. Laughna, Charles F. Loehner, Jr., James A. Meech, Kenneth R. Morrison, Quentin Nowicki, Francis E. Plonka, Nand S. Rai, Andrew A. Seleno, Anthony P. Slominski, Arthur R. Solomon, Paul J. Tsai, William H. Tumidanski

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 personnel, materials, and equipment to design, construct, operate, maintain and manage technical engineering projects. He/she should have a commitment to that technological progress which will create a better life for everyone.

DEGREE PROGRAM

The Degree 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

Admission

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.

An *Application for Undergraduate Admissions* is required. Forms may be requested from: Office of Admissions, Wayne State University, Detroit, Michigan 48202.

NOTE: A student must have prior written approval of the specialty coordinator to elect courses at a community college after having been admitted.

Fees And Registration

See pages 8-17 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.

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, an individually tailored *Plan of Work* will be developed in conjunction with the specialty coordinator. Thus, courses can be selected in the best order considering the student's academic preparation, individual course prerequisites, and proposed course scheduling.

Dean's List of Honor Students

A student who achieves a semester honor point average of 3.5 or more, based on a program of at least twelve credits, is notified by the Dean of citation for distinguished scholarship and his/her 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 the student's program, or in a course in his/her area of specialization, or in a required course in mathematics, physics, or chemistry, the student may be required, by his/her 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/her knowledge. However, he/she 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 denying a student further registration in the Division of Engineering Technology.

Graduation Requirements

The total minimum semester credits required for the Bachelor of Engineering Technology degree will range from 122 to 124, depending upon the specialty area. Approximately half the total should be earned before admission to Wayne State University.

University policy requires that the last thirty credits toward the baccalaureate be earned at Wayne State.

NOTE: A student who, after receiving one undergraduate degree at Wayne State University, wishes to obtain a second bachelor's degree must complete at least thirty credits beyond those applied toward the first degree.

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.

Satisfactory achievement on the English Proficiency Examination in Composition is required of each student. It is recommended that students take the examination at their earliest convenience. English 102 should constitute adequate preparation. The examination is given during the registration period at the beginning of each semester as shown in the *Schedule of Classes* under the English Language and Literature Department of the College of Liberal Arts. Students taking the English Proficiency Examination must apply to Testing and Evaluation, University Counseling Services; the fee is \$7.00.

Professional Registration

Bachelor of Engineering Technology students may be allowed to take the examination to become a Registered Professional Engineer in some states. In the State of Michigan, the law currently states that 'a person wishing to take the examination must have a bachelor's degree acceptable to the State Board of Registration for Professional Engineers.'

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, electrical/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 work in the abstract. For example, mathematical calculations and formulae are used to determine 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/electronic engineering technologists work in development, design, application, sales and in the manufacture of products.

The major divisions in the field are power and digital/analog electronics. The power specialist works primarily with power generation and distribution systems of electrical equipment, motors, generators, appliances, and controls. Electronic specialists develop and design electronic circuitry. This specialty also includes areas involving computers, communication systems, and electronic controls and devices. The impact of the microprocessor is already being felt, not only throughout the entire electrical/electronic field but in most design, analysis, control, testing, and data processing applications.

Program Requirements

COMMUNICATIONS, HUMANITIES, AND SOCIAL SCIENCE

	<i>credits</i>
English electives.....	6
P S 101 — American Government.....	4
PSY 102 — Elements of Psychology.....	4
<i>or</i>	
PSY 101 — Introductory Psychology.....	3 or 4
PSY 350 — Industrial-Organizational Psychology.....	3
SPB 200 — Effective Speech.....	3
Electives.....	4-5
Total:	24

BASIC SCIENCE AND MATHEMATICS

CSC 206 — Introduction to Digital Computing with FORTRAN.....	3
MAT 180 — Elementary Functions.....	4
MAT 340 — (E T 340) Applied Statistics.....	3
MAT 342 — (E T 342) Applied Calculus I.....	3
MAT 344 — (E T 344) Applied Calculus II.....	3
PHY 213 — General Physics.....	4
PHY 214 — General Physics.....	4
Total:	24

TECHNICAL SCIENCE, TECHNICAL SPECIALTY, AND ELECTIVES

E T 114 — Engineering Graphics I.....	2
E T 303 — Statics.....	3
E T 305 — Dynamics.....	3
E T 387 — Engineering Economic Analysis.....	3
<i>or</i>	
MIT 330 — Industrial Organization.....	3
EET 310 — Digital Circuits.....	3
EET 330 — Network Analysis I.....	3
EET 340 — Network Analysis II.....	3
EET 400 — Electronic Communication Circuits.....	3
EET 410 — Advanced Network Analysis.....	3

EET 420 — (MCT 420) Control Systems	3
EET 430 — Electromagnetic Fundamentals and Design.....	3
EET 440 — Transmission and Propagation of Energy and Signals.....	3
EET 450 — Energy and Electrical Machines.....	3
EET 470 — Microprocessor Fundamentals.....	3
¹ W.S.U. Technical Specialty Elective	3
² Electives.....	32
Total: 78	

Total minimum semester credits for the degree..... 124

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

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

¹ This elective *must* be selected with permission of the specialty coordinator and would normally be an electrical/electronic engineering technology course. However, another technology, computer science, mathematics, or business course may be approved where appropriate.

² These electives would normally be associate degree transfer credit with the majority from electrical/electronic technology or related areas. If the student has not had high school chemistry, it is recommended that a chemistry course be included.

COMMUNICATIONS, HUMANITIES, AND SOCIAL SCIENCE

English electives.....	credits 6
P S 101 — American Government.....	4
PSY 102 — Elements of Psychology	
or	
PSY 101 — Introductory Psychology.....	3 or 4
PSY 350 — Industrial-Organizational Psychology.....	3
SPB 200 — Effective Speech.....	3
Electives.....	4-5
Total: 24	

BASIC SCIENCE AND MATHEMATICS

CHM 102 — General Chemistry I.....	4
CSC 206 — Introduction to Digital Computing with FORTRAN.....	3
MAT 180 — Elementary Functions.....	4
MAT 340 — (E T 340) Applied Statistics.....	3
MAT 342 — (E T 342) Applied Calculus I.....	3
PHY 213 — General Physics.....	4
PHY 214 — General Physics.....	4
Total: 25	

TECHNICAL SCIENCE, TECHNICAL SPECIALTY AND ELECTIVES

E T 114 — Engineering Graphics I.....	2
E T 303 — Statics.....	3
E T 305 — Dynamics.....	3
E T 310 — Mechanics of Materials.....	3
E T 320 — Engineering Materials.....	2
E T 387 — Engineering Economic Analysis	
or	
MIT 330 — Industrial Organization.....	3
EET 300 — Introduction to Electrical Technology.....	3
EET 301 — Electrical Instrumentation.....	2
MIT 290 — Welding, Casting and Forming Processes.....	3
MIT 291 — Machine Tool Operations.....	3
MIT 360 — Process Engineering.....	3
MIT 370 — Numerical Control	
or	
MIT 478 — Computer-Aided Design and Manufacturing.....	3
MIT 401 — Product Design.....	2
MCT 340 — Design of Machine Elements	
or	
MCT 360 — Fluid Systems.....	3
³ W.S.U. Technical Specialty Elective.....	6
⁴ Electives.....	30
Total: 74	

Total minimum semester credits for the degree..... 123

³ These electives should be selected with permission of an adviser (see listing).

⁴ These electives will be associate degree transfer credits for most students with the majority in the individual's specialty area.

Technical Specialty Groups

Note: at least one technical specialty elective must be chosen from Group A.

A. MIT 322	Methods Analysis and Time Study
MIT 325	Materials Handling
MIT 332	Production and Inventory Management
or	
MGT 560	Introduction to Production Management
MIT 380	Quality Control I
MIT 455	Occupational Safety and Health Management
B. E T 115	Engineering Graphics II
E T 400	Computer Graphics I
E T 405	Computer Graphics II
E T 465	Technology Assessment and Forecasting
EET 470	Microprocessor Fundamentals
MIT 335	Applied Human Factors
MIT 364	Structure and Properties of Metals I
MIT 365	Structure and Properties of Metals II
MIT 372	Manual Numerical Control Programming
MIT 375	Computer-Assisted Numerical Control Programming I
MIT 378	Computer-Assisted Numerical Control Programming II
MIT 440	Quality Control II
MIT 470	Simulation for Manufacturing Analysis
MIT 472	Fundamentals of Manufacturing Computer Control
MIT 475	Computer-Assisted Numerical Control Programming III
MIT 490	Guided Study
MIT 491	Research Methods in Materials and Processes
MCT 311	Thermodynamics I
MCT 312	Thermodynamics II
MCT 341	Applied Kinematics
ACC 301	Elementary Accounting Theory I
ACC 302	Elementary Accounting Theory II
ACC 351	Business Law - Contracts, Sales
ACC 353	Business Law - Corporations, Partnerships
MGT 589	Social and Political Influences on Business
MGT 559	Introduction to Management

QUALITY CONTROL TECHNOLOGY OPTION

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 required, students are encouraged to specialize in a quality control related program.

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/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 particularly concerned with 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 skilled 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.

Program Requirements

COMMUNICATIONS, HUMANITIES, AND SOCIAL SCIENCE

	credits
English electives	6
P S 101 — American Government	3
PSY 102 — Elements of Psychology	
or	
PSY 101 — Introductory Psychology	3 or 4
PSY 350 — Industrial-Organizational Psychology	3
SPB 200 — Effective Speech	3
Electives	4-5
Total: 24	

BASIC SCIENCE AND MATHEMATICS

CSC 206 — Introduction to Digital Computing with FORTRAN	3
MAT 180 — Elementary Functions	4
MAT 340 — (E T 340) Applied Statistics	3
MAT 342 — (E T 342) Applied Calculus I	3
MAT 344 — (E T 344) Applied Calculus II	3
PHY 213 — General Physics	4
PHY 214 — General Physics	4
or	
CHM 102 — General Chemistry I	4
Total: 24	



TECHNICAL SCIENCE, TECHNICAL SPECIALTY AND ELECTIVES

ET 114 — Engineering Graphics I	2
ET 303 — Statics	3
ET 305 — Dynamics	3
ET 310 — Mechanics of Materials	3
ET 320 — Engineering Materials	2
ET 387 — Engineering Economic Analysis	
or	
MIT 330 — Industrial Organization	3
EET 300 — Introduction to Electrical Technology	3
EET 301 — Electrical Instrumentation	2
MCT 340 — Design of Machine Elements	
or	
MCT 360 — Fluid Systems	3
MIT 291 — Machine Tool Operations	
or	
MIT 351 — Manufacturing Analysis	3
MIT 332 — Production and Inventory Management	
or	
MIT 440 — Quality Control II	3
MIT 360 — Process Engineering	
or	
MIT 470 — Simulation for Manufacturing Analysis	
or	
MIT 478 — Computer-Aided Design and Manufacturing	3
MIT 380 — Quality Control I	4
¹ W.S.U. Technical Specialty Electives	6
² Electives	30
Total: 75	
Total minimum semester credits for the degree	123

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 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 job opportunities can be selected in the areas of

¹ These electives should be selected with permission of an adviser and could be chosen from a technology area other than Manufacturing/Industrial if it is deemed appropriate.

² These electives will be associate degree transfer credit for most students with the majority in the individual's specialty area.

design, emissions, experimental and thermal power.

Program Requirements

COMMUNICATIONS, HUMANITIES, AND SOCIAL SCIENCE

	<i>credits</i>
English electives	6
P S 101 — American Government	3
PSY 102 — Elements of Psychology	
or	
PSY 101 — Introductory Psychology	3 or 4
PSY 350 — Industrial-Organizational Psychology	3
SPB 200 — Effective Speech	3
Electives	4-5
Total: 24	

BASIC SCIENCE AND MATHEMATICS

GSC 206 — Introduction to Digital Computing with FORTRAN	3
MAT 180 — Elementary Functions	4
MAT 340 — (E T 340) Applied Statistics	3
MAT 342 — (E T 342) Applied Calculus I	3
MAT 344 — (E T 344) Applied Calculus II	3
PHY 213 — General Physics	4
PHY 214 — General Physics	
or	
CHM 102 — General Chemistry I	4
Total: 24	

TECHNICAL SCIENCE, TECHNICAL SPECIALTY AND ELECTIVES

ET 114 — Engineering Graphics I	2
ET 303 — Statics	3
ET 305 — Dynamics	3
ET 310 — Mechanics of Materials	3
ET 320 — Engineering Materials	2
ET 387 — Engineering Economic Analysis	
or	
MIT 330 — Industrial Organization	3
EET 300 — Introduction to Electrical Technology	3
EET 301 — Electrical Instrumentation	2
MIT 351 — Manufacturing Analysis	
or	
MIT 360 — Process Engineering	3
MCT 311 — Thermodynamics I	3
MCT 312 — Thermodynamics II	3
MCT 321 — Heat Transfer	
or	
MCT 341 — Applied Kinematics	2
MCT 340 — Design of Machine Elements	3
MCT 360 — Fluid Systems	3
³ W.S.U. Technical Specialty Electives	6
⁴ Electives	30
Total: 74	
Total minimum semester credits for the degree	122

Sample Program: For students with an associate degree in technology with transfer credits which include approximately twenty-four to twenty-eight semester credits in a specialty area, six credits in college

³ 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.

⁴ These electives will be associate degree transfer credit for most students with the majority in the individual's specialty area.

English, four credits in physics, four credits in chemistry or additional physics, two credits in engineering graphics, three credits in American government, six credits of elective in communications or socio-humanities, and mathematics through pre-calculus. *NOTE:* Actual programs will probably vary from this sample depending on courses taken in the associate degree curriculum.

Third Year

First Semester

	<i>credits</i>
ET 320 — Engineering Materials.....	2
MAT 340 — (E T 340) Applied Statistics.....	3
ET 303 — Statics.....	3
MIT 351 — Manufacturing Analysis.....	3
MAT 342 — (E T 342) Applied Calculus I.....	3
SPB 200 — Effective Speech.....	3
Total:	17

Second Semester

ET 305 — Dynamics.....	3
EET 300 — Introduction to Electrical Technology.....	3
MAT 344 — (E T 344) Applied Calculus II.....	3
MCT 311 — Thermodynamics I.....	3
PSY 101 — Introductory Psychology.....	4
Total:	16

Fourth Year

First Semester

	<i>credits</i>
CSC 206 — Introduction to Digital Computing with FORTRAN.....	2
ET 310 — Mechanics of Materials.....	3
EET 301 — Electrical Instrumentation.....	2
MCT 312 — Thermodynamics II.....	3
PSY 350 — Industrial-Organizational Psychology.....	3
W.S.U. Technical Specialty Elective.....	3
Total:	16

Second Semester

ET 387 — Engineering Economic Analysis	
<i>or</i>	
MIT 330 — Industrial Organization.....	3
MCT 321 — Heat Transfer	
<i>or</i>	
MCT 341 — Applied Kinematics.....	2
MCT 340 — Design of Machine Elements.....	3
MCT 360 — Fluid Systems.....	3
W. S. U. Technical Specialty Elective.....	3
Total:	14

COURSES OF INSTRUCTION¹

DIVISION OF ENGINEERING TECHNOLOGY

Engineering Technology (E T)

114. Engineering Graphics I. (ME 114). (Lct: 1; Lab: 3). Cr. 2

Theory and application of projection drawing; multiview drawing and sketching; pictorial drawing and sketching; sectional views; basic techniques of dimensioning; charts and graphs.

115. Engineering Graphics II. (ME 115). (Lct: 1; Lab: 3). Cr. 2

Prereq: E T 114. 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.

201. Architectural Drafting. (Lct: 2; Lab: 6). Cr. 4

An introduction to architectural drafting, featuring the development of good drawing technique, the principles of multi-view development, dimensioning, and sectional view techniques, and an introduction to pictorial drawing form: isometrics and obliques and their architectural applications.

303. Statics. (Lct: 2; Dsc: 2). Cr. 3

Prereq: MAT 180 and PHY 213. The algebraic and graphic techniques for determining the forces acting upon a body or structural component under static load.

305. Dynamics. (Lct: 3). Cr. 3

Prereq: MAT 342 and E T 303. 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.

310. Mechanics of Materials. (Lct: 3). Cr. 3

Prereq: E T 303. The elastic behavior of loadbearing materials. Tension, compression, shear, combined stress, bending, torsion and columns.

320. Engineering Materials. (Lct: 2). Cr. 2

Application and characteristics, both physical and chemical, of metallic and nonmetallic materials used in industry. The primary processes involved in producing these materials.

335. Engineering and Society. (Lct: 3). Cr. 3

Prereq: junior standing. The relationship of engineering to society from the Newtonian Revolution to the present; the proper role of future technology.

340. (MAT 340) Applied Statistics. (Lct: 3). Cr. 3

Prereq: college algebra. No degree credit in College of Liberal Arts.

¹ See page 633 for interpretation of numbering system, signs and abbreviations.

Application of probability concepts and statistical theory in the use of engineering data.

342. (MAT 342) Applied Calculus I. (Lct: 3). Cr. 3

Prereq: MAT 180. No degree credit in College of Liberal Arts. The application of differential and integral calculus and analytical geometry to engineering problem situations.

344. (MAT 344) Applied Calculus II. (Lct: 3). Cr. 3

Prereq: MAT 342. No degree credit in College of Liberal Arts. A continuation of MAT 342 including the application of ordinary differential equations to engineering problem situations.

387. Engineering Economic Analysis. (Lct: 3). Cr. 3

Prereq: MAT 180. Principles and techniques for analyzing projects involving the acquisition and replacement of capital equipment.

400. Computer Graphics I. (Lct: 3). Cr. 3

Prereq: CSC 206 or equiv. Material fee as indicated in *Schedule of Classes*. Introduction to on-line programming systems and graphic input-output systems including automatic drafting machines and plotters. Principles of computer-aided design. Geometric manipulation for computer use.

405. Computer Graphics II. (Lct: 3). Cr. 3

Prereq: CSC 206 or equiv. Introduction to the programming and operation of cathode ray tube graphic displays. CRT graphic display hardware. Configuring a total interactive computer graphics system oriented to product design.

465. Technology Assessment and Forecasting. (Lct: 3). Cr. 3

Prereq: senior standing or consent of instructor. In-depth study of the methods of technological assessment and forecasting.

490. Guided Study. (Ind: 1). Cr. 1-6(Max. 6)

Prereq: consent of instructor. Supervised study and instruction in field selected by student.

501. Architecture - Drafting and Design. (Lct: 2; Lab: 6). Cr. 4

Prereq: E T 201 and ART 235, or consent of instructor. Graduate credit for art education, industrial education, and family and consumer resources majors only. Experience in architectural design, development of architectural drawings, schedule selection and development, and additional work in perspective drawing relating to architectural situations.

590. Directed Study. (Ind: 1). Cr. 1-6(Max. 6)

Prereq: consent of instructor. Not open to students in the College of Engineering. Supervised study and instruction in a technological field selected by the student.

Electrical/Electronic Engineering Technology (EET)

300. Introduction to Electrical Technology. (Lct: 3). Cr. 3

Prereq: MAT 180, PHY 214. For non-electrical majors. Kirchhoff's laws, D.C. and A.C. circuit analysis, impedance, phasors, power and power factor correction, mutual coupling. Power transformers, D.C. and A.C. generators and motors, motor controls.

301. Electrical Instrumentation. (Lct: 1; Lab: 3). Cr. 2

Prereq: EET 300 or equiv. Theory and use of electrical instruments, power supplies, bridges, potentiometers, oscilloscopes, electronic instruments and transducers.

310. Digital Circuits. (Lct: 2; Lab: 2). Cr. 3

Prereq: junior standing. Applied Boolean algebra and number

systems. Logic families, combinational logic, flip-flops, counters, shift registers, arithmetic circuits, multiplexers and demultiplexers, memory systems.

330. Network Analysis I. (Lct: 3). Cr. 3

Prereq: MAT 180 and consent of adviser. 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.

340. Network Analysis II. (Lct: 3). Cr. 3

Prereq: MAT 342, PHY 214 and EET 330. Voltage-current relationships for inductors and capacitors, independent and dependent sinusoidal sources, phasors, impedance, power, reactive power, power factor, complex power, frequency response and resonance, three-phase systems, two-port networks, magnetically coupled circuits.

400. Electronic Communication Circuits. (Lct: 3). Cr. 3

Prereq or coreq: EET 340. Multistage amplifiers, power, efficiency, distortion, input and output impedance, frequency response, feedback, oscillators, modulators, demodulators, integrated circuits.

410. Advanced Network Analysis. (Lct: 3). Cr. 3

Prereq: MAT 344, EET 340; prereq. or coreq: CSC 206. Total response in first- and second-order systems, Fourier-series analysis, complex frequency, Bode plots, Laplace transform, computer solutions.

420. (MCT 420) Control Systems. (Lct: 3). Cr. 3

Prereq: MAT 344, E T 305, and EET 300 or EET 340. Representation and analysis of control components and systems for control of speed, flow, position, temperature, etc. Methods of setting up and solving system differential equations.

430. Electromagnetic Fundamentals and Design. (Lct: 2; Lab: 2). Cr. 3

Prereq. or coreq: EET 340. Forces and energy in static electric and magnetic fields, design analysis of resistors, capacitors, inductors, and tractive magnets. Thermal and economic factors in electrical design. Design of electrical elements and simple systems.

440. Transmission and Propagation of Energy and Signals. (Lct: 3). Cr. 3

Prereq: EET 430; prereq. or coreq: 410. Atmospheric wave propagation. Transmission line parameters, transmission equations, terminations, discontinuities, reflections, and loading. Smith chart. Waveguides. Antennas. Metallic reflectors and horns.

450. Energy and Electrical Machines. (Lct: 3). Cr. 3

Prereq. or coreq: EET 430. Energy fundamentals. Physical and operating characteristics of D.C. and A.C. generators and motors, transformers. Electric power network.

460. Power System Performance. (Lct: 3). Cr. 3

Prereq: EET 450; prereq. or coreq: 440. Electric power plants, three-phase systems, generation, transmission and distribution of electric power, power system apparatus, efficiency and economics of power system operation, per-unit notation, power network analysis and reduction, load-flow studies.

470. Microprocessor Fundamentals. (Lct: 2; Lab: 2). Cr. 3

Prereq: CSC 206. Use of microprocessors as interface devices, including hardware, software, interfaces, memory, registers, and micro-computer system architecture.

480. Microprocessor Interfacing. (Lct: 2; Lab: 2). Cr. 3

Prereq: EET 310 and 470. A continuation of EET 470 with emphasis on interfacing.

490. Guided Study. (Ind: 1). Cr. 1-6(Max. 6)

Prereq: senior standing and consent of instructor. Supervised study

and instruction in field selected by student.

495. Special Topics in Electrical/Electronic Engineering Technology. (Ind: 1). Cr. 1-3(Max. 6)

Prereq: consent of adviser. A consideration of special subject matter in electrical/electronic engineering technology. Topics to be announced in *Schedule of Classes*.

Manufacturing/Industrial Engineering Tech (MIT)

200. Materials and Processes of Industry I. (Lct: 3). Cr. 3

Open only to students from Center for Creative Studies. No degree credit. Material fee as indicated in *Schedule of Classes*. Theory and practical application of manufacturing processes as related to the industrial design process.

201. Materials and Processes of Industry II. (Lct: 3). Cr. 3

Prereq: MIT 200. Continuation of MIT 200.

290. Welding, Casting, and Forming Processes. (Lct: 2; Lab: 2). Cr. 3

Only one credit after MIT 351. Material fee as indicated in *Schedule of Classes*. 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.

291. Machine Tool Operations. (Lct: 2; Lab: 2). Cr. 3

Only one credit after MIT 351. Material fee as indicated in *Schedule of Classes*. Fundamental theory of machining on lathes, mills, shapers, grinders, related service equipment, and assembly of processed parts. Includes substantial laboratory experience.

322. Methods Analysis and Time Study. (Lct: 3). Cr. 3

Development of the fundamental concepts and approaches of time and motion study; application of the principles of motion economy.

325. Materials Handling. (Lct: 3). Cr. 3

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.

330. Industrial Organization. (Lct: 3). Cr. 3

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.

332. Production and Inventory Management. (Lct: 3). Cr. 3

Prereq: MAT 340. Basic production scheduling and inventory management. Production planning, project management, inventory functions, and inventory costs.

335. Applied Human Factors. (Lct: 3). Cr. 3

Prereq: PSY 101. Introduction to the physiological and psychological capacities of man; sensory information processing and motor abilities of man as these factors affect job design.

340. Metrology. (Lct: 2; Lab: 2). Cr. 3

Prereq: MIT 291 or 351. 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.

351. Manufacturing Analysis. (Lct: 3). Cr. 3

No credit after MIT 290 and MIT 291. Comprehensive analytical and theoretical study of manufacturing processes including casting, forming, machining, welding and fabrication of common materials. Laboratory demonstrations.

360. Process Engineering. (Lct: 3). Cr. 3

Prereq: MIT 291 or 351. Processing functions. Methods of manufacturing analysis. Manufacturing sequence, mechanization. Selection of tooling and equipment. Planning the process of manufacture.

364. Structure and Properties of Metals I. (Lct: 4). Cr. 4

Prereq: E T 320. The physical, chemical and mechanical properties of metal; iron and steel.

365. Structure and Properties of Metals II. (Lct: 3; Lab: 2). Cr. 4

Prereq: MIT 364. The physical metallurgy of alloy steels and non-ferrous metals.

370. Numerical Control. (Lct: 3). Cr. 3

Prereq: MIT 291 or 351 or equiv. Fundamental concept 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.

372. Manual Numerical Control Programming. (Lct: 2; Lab: 2). Cr. 3

Prereq: MIT 370 or equiv. Theory and practice in manual part programming for point-to-point and continuous path numerically controlled manufacturing equipment. Includes 2-, 3-, and 4-axis tape preparation considerations.

375. Computer-Assisted Numerical Control Programming I - Basic APT. (Lct: 2; Lab: 2). Cr. 3

Prereq: MIT 370 or equiv. Material fee as indicated in *Schedule of Classes*. Theory and practice in computer-assisted part programming using the APT language. APT system organization and terminology; vocabulary and statement structure; start-up and motion nomenclature; diagnostics and program debugging; computer capabilities.

378. Computer-Assisted Numerical Control Programming II - COMPACT. (Lct: 2; Lab: 2). Cr. 3

Theory and practice in computer-assisted part programming using the COMPACT language. System organization and terminology; control statements; describing the part; describing machining operations; diagnostics and program debugging.

380. Quality Control I. (Lct: 4). Cr. 4

Prereq: MAT 340. Introduction to total quality systems design and to basic analytical techniques for quality control.

401. Product Design and Liability. (Lct: 2). Cr. 2

Design philosophy. Analysis and design of elements to perform specified functions. Limitations imposed by manufacturing processes, cost, material properties, and liability factors.

425. Plant Layout and Facilities Design. (Lct: 2; Lab: 2). Cr. 3

Design of production and service facilities including equipment location, materials movement, material storage, maintenance facilities and estimation of personnel requirements.

440. Quality Control II. (Lct: 2; Lab: 2). Cr. 3

Prereq: MIT 380 or equiv. Analytical techniques for quality control systems, design and analysis including: the development and use of process control charts, introduction to lot and process characteristics, estimation, and hypothesis testing as it applies to manufacturing operations.

455. Occupational Safety and Health Management. (Lct: 2). Cr. 3

History and basic principles of safety programs including: safety legislation, various aspects of industrial safety and hygiene, case studies.

470. Simulation for Manufacturing Analysis. (Lct: 3). Cr. 3

Prereq: CSC 206 and MAT 340. Introduction to simulation modeling of manufacturing operations. Model building, model verification and simulation program coding.

472. Fundamentals of Manufacturing Computer Control. (Lct: 3). Cr. 3

Prereq: senior standing or consent of instructor. The application of computers in a manufacturing environment. Organization and implementation of a manufacturing computer system.

475. Computer-Assisted Numerical Control Programming III - Advanced APT. (Lct: 2; Lab: 2). Cr. 3

Prereq: MIT 375 or equiv. 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.

478. Computer-Aided Design and Manufacturing. (Lct: 3). Cr. 3

Prereq: CSC 206 and MIT 351 or MIT 291. The application of computer-aided techniques, including graphic display devices and numerically controlled machines in product design and manufacturing.

490. Guided Study. (Ind: 1). Cr. 1-6(Max. 6)

Prereq: senior standing; consent of instructor. Supervised study and instruction in the field selected by the student.

491. Research Methods in Materials and Processes. (Lct: 1; Lab: 5). Cr. 3

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)

311. Thermodynamics I. (Lct: 3). Cr. 3

Prereq: MAT 342 and PHY 213. The first and second laws of thermodynamics with applications to gas and vapor processes and an introduction to cycles.

312. Thermodynamics II. (Lct: 3). Cr. 3

Prereq: MCT 311. Power and refrigeration cycles, gas and vapor mixtures, nozzle and blade passage flow and combustion.

321. Heat Transfer. (Lct: 2). Cr. 2

Prereq: MCT 311. Basic modes of heat transfer and their applications. Steady state conduction in one and two dimensions and transient conduction. Numerical and graphical methods.

340. Design of Machine Elements. (Lct: 2; Lab: 2). Cr. 3

Prereq: E T 305, E T 310 and E T 320. Fundamental concepts in the correct design of the separate elements which compose the machine; application of properties and mechanics of materials modified by practical considerations.

341. Applied Kinematics. (Lct: 1; Lab: 3). Cr. 2

Prereq: E T 305. 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.

360. Fluid Systems. (Lct: 3). Cr. 3

Prereq: E T 305. Properties of hydraulic fluids, fundamentals of fluid flow, dimensional analysis and similitude, and flow measurement techniques. Analysis of hydrostatic equipment, hydrokinetic equipment and systems.

370. Mechanical Laboratory. (Lct: 1; Lab: 3). Cr. 2

Prereq: MCT 360. Testing of hydraulic and pneumatic and related electro-thermo-mechanical equipment, including instruction in the use, characteristics and calibration of the necessary instrumentation. Analysis of results and submission of reports.

420. Control Systems. (EET 420). (Lct: 3). Cr. 3

Prereq: MAT 344, E T 305 and EET 300 or EET 340. Representation and analysis of control components and systems for control of speed, flow, position, temperature, etc. Methods of setting up and solving system differential equations.

480. Combustion Engines. (Lct: 3). Cr. 3

Prereq: MCT 312. 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.

481. Combustion and Emissions. (Lct: 3). Cr. 3

Prereq: MCT 480. 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.

482. Gas Turbine Power. (Lct: 3). Cr. 3

Prereq: MCT 312 and 321. Thermodynamic analysis of the gas turbine processes. Study of plant components. Application to aircraft propulsion, stationary, mobile and marine power.

483. Thermal Environmental Engineering. (Lct: 3). Cr. 3

Prereq: MCT 312 and 321. Concepts and techniques in refrigeration and air conditioning.

484. Air Pollution Control. (Lct: 3). Cr. 3

Prereq: MCT 312. 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.

485. Nuclear Power. (Lct: 3). Cr. 3

Prereq: MCT 311. 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.

490. Guided Study. (Ind: 1). Cr. 1-6(Max. 6)

Prereq: consent of instructor. Supervised study and instruction in the field selected by the student.

College of Engineering Directory

Dean
Room 141, Engineering Building; 577-3775

Associate Dean—Undergraduate Programs
Room 141, Engineering Building; 577-3780

Associate Dean—Graduate Programs and Research
Room 235, Engineering Building; 577-3861

Administrative Officer
Room 141, Engineering Building; 577-3817

Director, Engineering Technology
4855 Fourth Avenue; 577-0800

Director, Special Programs
Room 136, Engineering Building; 577-3812

Coordinator, Cooperative Education
University Placement Office, Mackenzie Hall

Manager, Off-Campus Programs
Room 141, Engineering Building; 577-4707

Chemical Engineering
Room 231, Engineering Building; 577-3800

Civil Engineering
667 Merrick Avenue; 577-3789

Electrical and Computer Engineering
Room 308, Engineering Building; 577-3920

Industrial Engineering and Operations Research
640 Putnam Street; 577-3821

Mechanical Engineering
667 Merrick Avenue; 577-3845

Metallurgical Engineering
Room 128, Engineering Building; 577-3800

Research Institute for Engineering Sciences
Room 235, Engineering Building; 577-3867

Energy Center
Room 234, Engineering Building; 577-3811

Bio-Engineering Center
418 Health Sciences Building; 577-1344

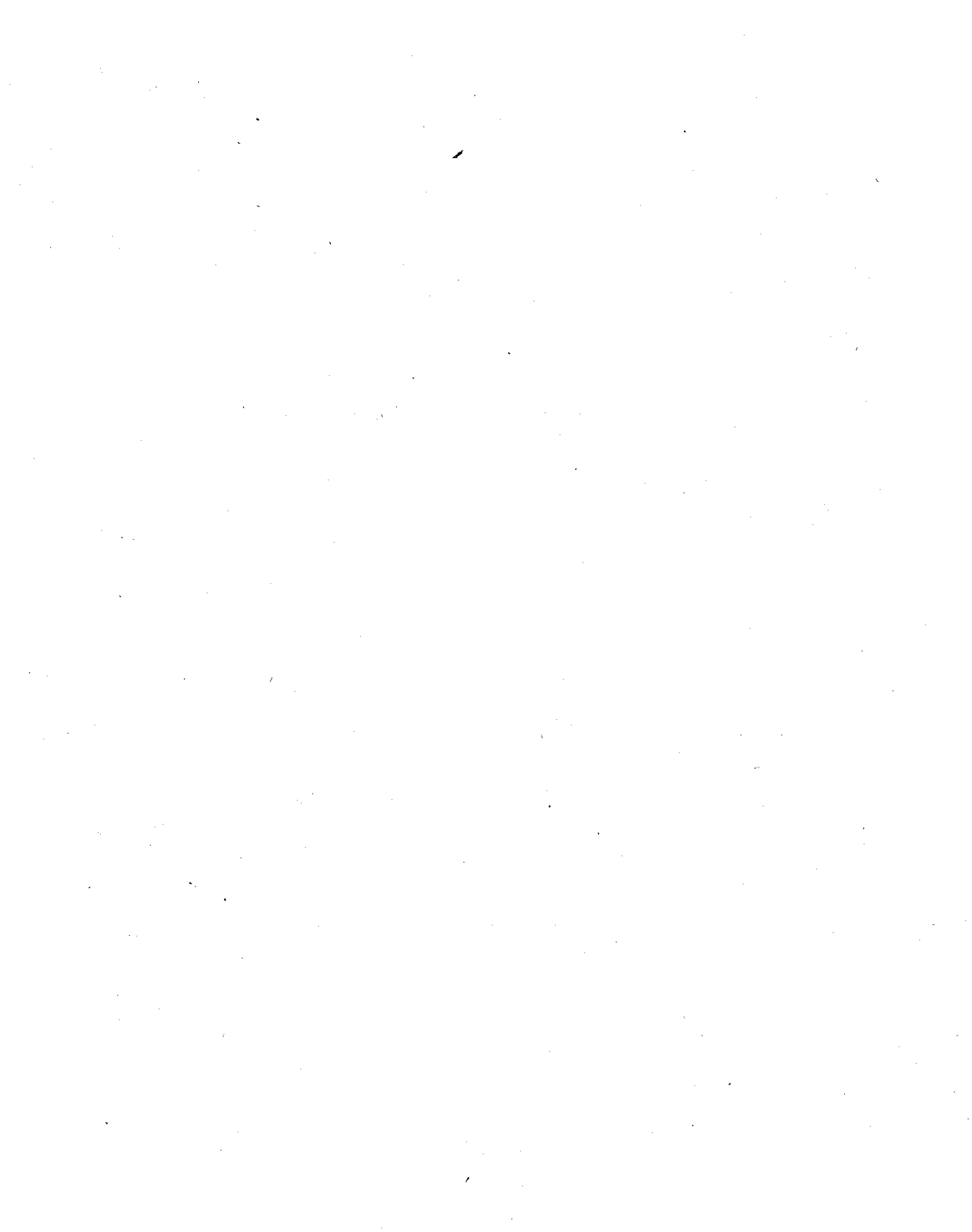
Health Systems Productivity Center
Room 201, 640 Putnam; 577-3821

Center for Automotive Research
Room 227, Engineering Building; 577-3887

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

ACTING DIRECTOR: FREDERICK A. MULHAUSER

Foreword

Health, dance, physical education and recreation, as integral parts of a general education, focus attention upon the vital needs of the human being to acquire attitudes, knowledge and skills necessary for regular participation in physical and leisure-time activities. 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 of 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. 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; membership in the performing dance company for men and women. 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.

The College of Education is the degree granting unit for all students majoring in a professional program.



HEALTH AND PHYSICAL EDUCATION

Professional Programs

Professional programs in the Division of Health and Physical Education include:

Undergraduate

Dance Major

Dance Minor

Health Education minor

Physical Education major

Physical Education Minor

Recreation and Park Services major

Graduate

Dance concentration

Health Education

Physical Education

Recreation and Park Services

Sports Administration

Professional Curricula

Programs leading to the bachelor's degree and the master's degree in health education, physical education, dance education and in recreation and park services are offered under the guidance of the Division of Health and Physical Education.

UNDERGRADUATE CURRICULA

Professional preparation programs are offered leading to the Bachelor of Science degree with a major in physical education, recreation and park services, or dance. Each requires a minimum of 124 credits and is divided into three general areas of study: general education; physical education, dance, or recreation and park services; and education. Majors may elect a teaching or non-teaching curriculum (except in recreation and park services). Course patterns for these programs must be developed on an individual basis with Division advisers. Completion of the teaching major leads to K-12 certification (consult the College of Education section of this Bulletin for details, page 82).

A physical education minor is available (minimum of twenty credits in approved physical education courses) with any secondary or elementary teaching major.

A dance minor is available requiring a minimum of twenty-four credits in approved dance courses. A 2.5 honor point average must be maintained in the major in order to be certified for graduation.

General Education Requirements

A minimum of forty credits in general education courses are required, consisting of basic requirements in science, social science, English, speech, and humanities, as well as additional courses elected to broaden and/or supplement students' interests. Students in the teaching curriculum must develop a minor of twenty credits, a group minor of twenty-four credits, or a second major of 30-36 credits.

College of Education Requirements

A minimum of twenty-four credits in College of Education courses is required for the teaching track and twenty credits for the non-teaching track. Specific requirements differ for each and are indicated in the Undergraduate Major Handbook available from the Division of Health and Physical Education.

Student Teaching

To qualify for student teaching assignment, students in the teaching option must meet the following conditions:

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 semester during which student teaching will take place.

Student teaching application periods are as follows:

Fall Semester the preceding October, November, December, January
Winter Semester the preceding April, May, June, July

Prerequisites for Student Teaching: To qualify for a student teaching assignment, students in the teaching option must meet the following conditions:

1. Application must be made through the student's academic adviser to the Division of Teacher Education according to the schedule above.
2. The Writing Competency Examination must be satisfactorily completed.
3. 92 credits must be completed.

The following requirements apply to physical education majors only.

4. A 2.5 honor point average must be earned in the major. The following courses are used to compute the major h.p.a.: all courses having a P E prefix; courses having a PEA prefix at the intermediate and above levels; ANA 301, PSL 322, H E 330.
5. The following courses must be satisfactorily completed: ANA 301, PSL 322, P E 191, 258, 259, 340, 341, 345, 350, TED 355, EDP 331; and lifesaving certification.

Admission To Professional Program

— Junior College Level

Prospective health and physical education students entering the University directly from high school, or transferring to Wayne from other colleges with less than fifty-three credits are admitted by the University Admissions Office directly to the College of Education at the junior college level. Admission is through the University Office of Admissions. Students already admitted to the College of Liberal Arts with less than fifty-three credits apply for transfer to the major curriculum at the junior college level through the College of Education, 489 Education Building.

Major and minor dance students must be admitted to the College of Education. Certain prerequisites and required courses must be taken in the freshman and sophomore years and it is essential that students considering this curriculum consult their undergraduate adviser in the Dance Department.

— Senior College Level

Upon completion of two years of college work (a minimum of fifty-three credits) at an accredited institution, students apply to the College of Education for admission to senior college professional work. In addition to the fifty-three credit minimum, students must have completed English 150 and have an overall h.p.a. of 2.5. Applicants who have completed two full years or more of college work at an institution other than Wayne University must file transcripts of such work with the College of Education, Division of Academic Services, not in the University Office of Admissions.

Physical Education

The professional physical education curriculum for majors consists of the common core which all students complete (17-23 credits), and the specialized core. Students who elect the teaching program complete a specialized core designed to provide the competencies essential in teaching (fifteen credits). Students who elect the non-teaching option design a specialized core of courses in consultation with an adviser. A minimum of forty credits in physical education is required for the teaching curriculum and thirty-four credits for the non-teaching curriculum.

All students are required to complete the skills competency requirement as a prerequisite to graduation. Appropriate skills tests are also prerequisite to enrollment in certain instructional techniques courses, coaching theory courses, and some elective emphases.

Students electing the physical education minor must complete a required core of seven to nine credits and a specialized teaching core of four to seven credits. The student must elect additional physical education courses to complete the twenty credit minor from approved courses.

Physical education student majors and minors are encouraged to develop an elective emphasis (eight to ten credits) in one of the following areas:

Adapted Physical Education	Coaching
Aquatics	Dance
Athletic Training	Recreation
Fitness Leadership	

Dance

The Dance Department provides opportunities for experiential and academic dance studies. The Department offers curricular choices at the undergraduate, post degree, and graduate levels designed to meet individual needs and interests, prepare certified teachers of dance, and encourage students to perform, choreograph and produce concert dance of high quality. Career options are explored through work which prepares students to assume responsibilities of the profession.

Undergraduate studies in dance are reflected by the following major and minor designations:

Teaching major in dance for primary and secondary school certification.

Teaching minor along with any secondary school teaching major such as music, art, special education, speech, etc.

Teaching minor or specialization in dance with a physical education major.

Major in Dance leading to the Bachelor of Science degree from the College of Education.

Dance sequence within any major in the College of Liberal Arts.

Post-Degree studies in dance: Students who have State Teacher Certification in any secondary major may add a Dance Certification K-12 by completing the Dance Minor requirements.

Graduate Studies in Dance: Students with an undergraduate major or minor in dance or with equivalent dance experience may take a concentration in dance education as part of a master's program in the College of Education.

The above options enable students to design an emphasis in dance study appropriate to their interest in the discipline. Students interested in extending their skill and knowledge of dance are invited to participate in the variety of dance courses offered. Class experiences provide the student with opportunities to learn to move more efficiently, to gain experience in dance improvisation, various dance styles and choreography and to acquire a deeper understanding and appreciation of dance as an art form.

Performance Opportunities: The Dance Company is a performing group composed of skilled dance students who must qualify through auditions. This group presents concerts, lecture/demonstrations and performances on campus and in the community, of works choreographed by visiting artists, by faculty and by exceptionally talented students. All majors must qualify for and be a member of the Company for four semesters. This requirement can also be met through choreographic and/or production responsibilities in the Company.

Driver Education Certification

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 nine-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. This program meets the minimum requirements for a secondary certificate in health education, and qualifies graduates to teach in the area of human sexuality and reproductive health.

Courses are required in three areas totaling twenty-four credits:

	<i>credits</i>
Basic Health Science	5-7
ANA 301 and PSL 322 — Human Anatomy and Physiology or BIO 187 — Anatomy and Physiology (non-P E majors only)	
Health Aspects of Man and His Environment	5
HEA 231 — Dynamics of Personal Health HEA 232 — Dynamics of Community and Environmental Health	
Professional Preparation	5
H E 330 — Health of School Child	

H E 333 — School Health Education
H E 434 — Reproductive Health Education
H E 480 — Fieldwork in Health Education

Electives

A wide variety of health-related electives are approved to complete the twenty-four credits needed.

Bachelor of Science in 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 fifty-three 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.

	<i>credits</i>
Communication Skills.....	17
(Three English and two Speech Courses)	
Human Interaction.....	13
(Courses in Speech, Psychology and two Education electives)	
Natural Sciences.....	8
(Basic biology, anatomy and physiology required for the Therapeutic option and recommended for others.)	
Behavioral Sciences.....	16
(Political Science and four elective courses)	
Measurement and Evaluation.....	2
Health and Physical Education.....	8
(Growth and Development, First Aid and three Physical Education electives)	

Note: Specific, approved courses for the above areas may be obtained from departmental advisers.

Regular Major Status: Regular major status is applied for through the College of Education, 489 Education Building, when the student has completed fifty-three credits. The student then completes the remainder of the required courses listed in addition to the forty-three credits of major courses listed below. Additional courses to complete the 124 credits needed for graduation are chosen as electives in consultation with the student's major adviser. 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

	<i>credits</i>
R P 260 — Principles of Leadership and Recreation Programming.....	3
R P 264 — Camp Leadership.....	4
R P 360 — Social Recreation Programming.....	3
R P 362 — Introductory Field Work.....	3
R P 367 — Introduction to Therapeutic Recreation.....	3
R P 463 — Philosophy of Recreation and Park Services.....	3
R P 562 — Advanced Field Work.....	6
R P 665 — Supervision and Management in Leisure Service Delivery Systems.....	3
Junior/Senior seminars (two required).....	0
total:	28

II. Options—Select One

A. Administration

R P 465 — Recreation and Park Administration.....	3
R P 561 — Facility Maintenance in Rec. and Park Services.....	3
R P 593 — Introduction to Facility Planning and Design.....	3
R P 664 — Legal Issues in Leisure Service Systems.....	3
Electives chosen in area of specialization.....	3
Total:	15

B. Therapeutic Recreation

R P 565 — Recreation Services for the Aging.....	3
R P 598 — Therapeutic Terminology.....	2
R P 599 — Mental Health and Leisure Services.....	2
R P 666 — Therapeutic Recreation.....	3
R P 698 — Leisure Counseling and Leisure Education.....	3
R P 462 — Internship (Pre-Clinical Placement).....	2
Total:	15

C. Outdoor Recreation

R P 568 — Wilderness Leadership.....	3
R P 660 — Outdoor Education.....	3
R P 667 — Outdoor Recreation.....	3
Elective(s) chosen in consultation with student's major adviser.....	6
Total:	15

III. Recreation and Park Services Electives..... 9

IV. Additional Courses, Student Option..... 7-10

GRADUATE DEGREE PROGRAMS

For complete information regarding graduate rules and regulations, students should consult the Graduate School section of this bulletin, beginning on page 18.

Minimum admission requirements to Master's degree programs include (1) undergraduate major or minor in the respective field or compliance with Departmental experience requirements; (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 of thirty-six credits in course work. Students may elect a curriculum in either School Health Education or Clinical-Community Health Education. Requirements for either option include: fourteen-eighteen credits in professional specialization; six-nine credits in general professional core courses; and nine-fifteen credits in elective courses chosen in consultation with an adviser.

Specialization courses for School Health Education

H E 641 — Curriculum in Health Education.....	2
H E 642 — Curriculum in Health Education II.....	2
H E 741 — Current Issues in Health Education.....	2
H E 743 — Administration of School Health Programs.....	2
H E 750 — Research Methods.....	3
H E 799 — Terminal Master's Seminar and Project.....	3

Specialization courses for Clinical-Community Health Education

H E 642 — Curriculum in Health Instruction II.....	2
--	---

H E 653 — Needs Assessment in Health Education.....	2
H E 741 — Current Issues in Health Education.....	2
H E 750 — Research Methods.....	3
H E 752 — Fieldwork in Clinical Health Education.....	3
H E 754 — Instructional Design.....	3
H E 799 — Terminal Master's Seminar and Project.....	3

Physical Education

Students pursuing the degree of Master of Education in Physical Education may elect one of the following curriculum options: (1) education theory and practice, (2) theoretical foundations of sport, (3) science of human movement, (4) dance. Degree requirements include a minimum total of thirty-two credits in course work as follows: (1) twenty credits in professional specialization, (2) six credits in general professional education, and (3) six credits in cognate work outside of but complementary to the area of specialization.

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>
P E 750 — Research Methods.....	3
P E 799 — Master's Essay and Project Direction.....	3
<i>or</i>	
P E 899 — Master's Thesis Direction (8 credits req.).....	1-8
P E 651 — History of Physical Education.....	3
<i>or</i>	
P E 751 — Foundations of Physical Education.....	3
P E 754 — Org. and Adm. of Phys. Ed. and Athletics.....	4
P E 755 — Curriculum Planning in Physical Education.....	2
P E 841 — Current Issues in Physical Education.....	2
Recommended Elective.....	0-3

Theoretical Foundations of Sport: This program option focuses on the historical, sociological, philosophical and psychological dimensions of sport.

Specialization Course Work

	<i>credits</i>
P E 750 — Research Methods.....	3
P E 799 — Master's Essay and Project Direction.....	3
<i>or</i>	
P E 899 — Master's Thesis Direction (8 credits req.).....	1-8
<i>Three of the following four areas.</i>	
P E 651 — History of Physical Education.....	3
P E 657 — Psychology of Sport.....	3
P E 751 — Foundations of Physical Education.....	3
<i>or</i>	
P E 844 — Dimensions of the Sport Experience.....	3
P E 843 — Sociology of Sport.....	3
Electives.....	0-2

Science of Human Movement: Students selecting this program option will concentrate on the biopsychophysical dimensions of human movement.

Specialization Course Work

	<i>credits</i>
P E 750 — Research Methods.....	3
P E 799 — Master's Essay and Project Direction.....	3
<i>or</i>	
P E 899 — Master's Thesis Direction (8 credits req.).....	1-8

P E 758 — Biomechanical Analysis of Motor Activity.....	2
P E 853 — Sociology of Sport.....	3
P E 856 — Exercise Physiology.....	3
Electives.....	2-7

Dance: This curriculum option is open to students who have an undergraduate major or minor in dance or the equivalent in dance study. Applicants who wish to earn a teaching certificate must meet state certification requirements in addition to completing the course work required for the Master's degree. Students must take designated courses in an area of emphasis within the curriculum. An audition is required for the performance emphasis.

Required specialization core courses:

	<i>credits</i>
DNC 681 — Teaching Creative Dance.....	2
DNC 683 — Historical Foundations of Dance.....	2
DNC 750 — Research Methods.....	3
DNC 799 — Master's Essay or Project.....	3

Emphasis Areas

Performance

DNC 601 — Technique Laboratory III.....	1-4
DNC 661 — Dance Company II.....	1-10
DNC 685 — Seminar in Dance Techniques.....	2

Choreography and Production

DNC 785 — Laboratory in Choreography.....	2
DNC 687 — Problems in Concert Production.....	2-4
DNC 685 — Seminar in Dance Techniques.....	2

Dance Education

DNC 683 — Historical Foundations of Dance.....	2
DNC 685 — Seminar in Dance Techniques.....	2

Sports Administration

The Master of Arts in Education with a major in sports administration requires a minimum of thirty-two credits distributed as follows: sixteen credits in required courses and sixteen credits in selected courses to support the area of specialization — interscholastic athletic administration, intercollegiate athletic administration, or professional and commercial sports administration.

Students entering the program usually possess an undergraduate degree in physical education, however, students with undergraduate degrees in other relevant areas will be considered.

Required Courses

	<i>credits</i>
P E 654 — Introduction to Sports Administration.....	3
P E 750 — Research Methods.....	3
P E 875 — Internship in Sports Administration.....	4
P E 799 — Master's Essay or Project.....	3
EDA 762 — Introduction to Administration.....	3

Recreation and Park Services

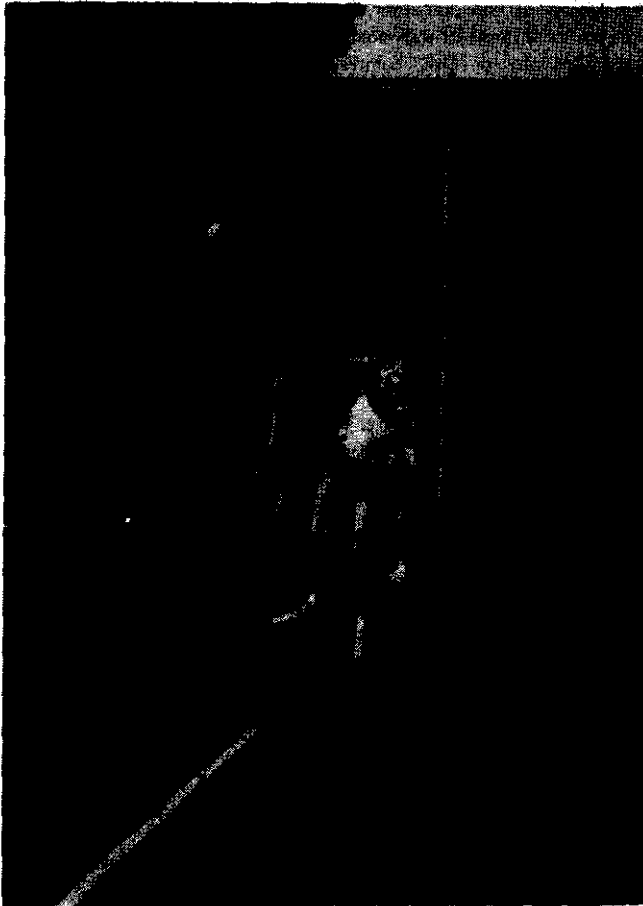
Requirements for the degree of Master of Arts in Recreation and Park Services include a minimum total of thirty-two credits in course work as follows: (1) nine to seventeen credits in core course work, (2) twelve to twenty credits in the area of professional specialization, and (3) six credits in cognate 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 nine credits in recreation and park services courses and an acceptable field work experience at the undergraduate level as a prerequisite.

Core courses for all majors

	<i>credits</i>
R P 760 — Research Methods.....	3
Terminal Project or Thesis.....	3-8
* R P 761 — Community Recreation Leadership.....	3
R P 861 — Current Professional Issues.....	3

* 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.

Courses whose credit is marked with an asterisk may be elected for credit beyond the range indicated.

Dance (DNC)

101. Contemporary Dance I. Cr. 2

Basic movement techniques and improvisational experiences in concert dance; films and concert viewing.

102. Contemporary Dance II. Cr. 2

Prereq: DNC 101 or equiv. Continuation of DNC 101 on an intermediate level.

111. International Folk Dances I. Cr. 1

Introduction to the style and form of folk dances.

112. International Folk Dances II. Cr. 1

Prereq: DNC 111 or equiv. Continuation of DNC 111 on a more advanced level.

115. American Square and Round Dances. Cr. 1

Traditional and contemporary American squares, rounds, contras, and mixers.

121. Fundamentals of Classic Ballet I. Cr. 1

Fundamental techniques of classic ballet; emphasis on analysis, proper execution.

122. Fundamentals of Classic Ballet II. Cr. 1

Prereq: DNC 121 or equiv. Continuation of DNC 121.

201. Technique Laboratory I. Cr. 1-4*

Prereq: DNC 102 or equiv. Modern dance technique of increasing difficulty and complexity; experiences in improvisation, problem solving, and compositional studies in dance.

221. Intermediate Ballet. Cr. 1-4*

Prereq: DNC 122 or equiv. Continuation of DNC 122 on a more advanced technical level with emphasis on placement.

222. Ballet Techniques, Beginning Point Work. Cr. 1*

Prereq: DNC 221 or equiv.; consent of instructor. Fundamental ballet barre exercises introducing point work.

231. Historical Perspectives of Dance. Cr. 3

Historical development of dance in the nineteenth and twentieth centuries; educational, ethnic, theatre and classic concert styles and their relationship to the cultural environment.

232. Perspectives in Dance. Cr. 2

The dance environment; modern, ethnic, and classic concert styles; dance relationships to music, drama and the visual arts; bibliographical resources for study. Field trips.

242. Music Theory and Appreciation for Dancers. Cr. 1(Max. 2)

Elements of music relevant to the artistic growth of dancers.

¹ See page 633 for interpretation of numbering systems, signs and abbreviations.

Rudimentary music theory with emphasis on rhythm, concepts of style, historical survey, music listening skills. Musical examples, especially music composed for dance.

243. Accompaniment for Dance. Cr. 1(Max. 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.

311. Ethnic Dance Forms. Cr. 2

Prereq: DNC 112 or equiv. Folk and ethnic dance, and dance styles of selected historical periods; their development from the ritual matrix into recreational forms. Continued investigation of folk dances of increasing complexity.

331. Dance Production. Cr. 2

Concentration on selected 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.

383. (P E 345) Dance Education Curriculum, K-12. (DNE 383). Cr. 2

Prereq: P E 341 or equiv. Instructional materials in dance movement exploration and problem solving, rhythmic skills, dance making, traditional dance steps, and in the recreational forms of dance with application to the school dance program.

398. Assisting in Dance. Cr. 1(Max. 2)

Prereq: consent of dance adviser. Assigned field work in assisting under faculty supervision.

401. Technique Laboratory II. Cr. 1-4*

Prereq: DNC 201 or consent of instructor. Modern dance technique, intermediate and advanced level.

455. Choreography I. Cr. 3

Prereq: DNC 102 or equiv. Construction of motifs and dance studies based on music, properties, nonliteral and literal thematic materials. Form and structural concepts.

481. Methods in Modern Dance and Ballet. (DNE 481). Cr. 3

Prereq: DNC 102 and 122 or equiv. Analysis of instructional methods and materials in modern dance and ballet, including technique, improvisation, composition, curriculum planning and evaluation.

498. Field Work in Dance. Cr. 1-6(Max. 10)

Prereq: consent of adviser and cooperating agency. Open only to undergraduate dance students. Approved selected experiences in schools or community agencies.

511. Study in Dance Styles. Cr. 1-4(Max. 12)

Examination of a particular dance style; i.e., historic period, technique, jazz, tap, fad and social dance forms.

532. Dance and Other Arts in Folk Culture. (TED 511). Cr. 2-6

Prereq: DNC 111 or consent of instructor. Basic art forms, costuming, crafts, designs indigenous to various folk cultures and their relationship to folk dance.

541. Dance Notation I. Cr. 2

Background in movement or dance is desirable. Labanotation of dance and movement; survey of other systems. Analysis and recording of movement and dance.

542. Dance Notation II. Cr. 2

Prereq: DNC 541 or equiv. Continuation of DNC 541.

544. Dance for Elementary Music Teachers. (TED 544) (MED 554). Cr. 2

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 relationships among language, music and movement.

545. Dance and Other Arts Disciplines. Cr. 1-6(Max. 6)

The connections among the arts and their impact on the dance discipline. Emphasis on the context of aesthetic experience and artistic communication.

546. (AED 530) Integrating Art, Dance, and Music. Cr. 3

Experiments in designing and producing art expressions which are integrated with and enhance other art forms. Students gain skills in each art form and practice developing expressions combining two to three arts.

555. Choreography II. Cr. 3

Prereq: DNC 455 or equiv. Selection of dance themes, construction of dances, small group studies. Aesthetic considerations, form and elements of performance.

561. Dance Company I. (Std: 9). Cr. 1-10*

Prereq: admission by audition. Coreq: DNC 401 or 601. Performing company. Open to students interested in performing and/or choreographing. Four credits required for dance majors.

571. Workshop in Contemporary Dance. Cr. 1-6*(Max. 6; grad. students, max. 3)

A concentrated period of advanced dance study in technique, composition and repertory, often with a visiting artist.

572. Workshop in International Folk Dance. Cr. 1-6*(Max. 6; grad. students, max. 3)

Concentrated advanced study in international folk dance, often with a guest artist-teacher.

573. Workshop in American Country Dance. Cr. 1-6*(Max. 6)

Concentrated advanced study in American country dance, often with guest artist-teacher.

580. Repertory. Cr. 1-4*

Prereq: DNC 401 or equiv.; audition or consent of instructor. Learning, for performance, of standard modern repertory, dance previously choreographed by instructor, Labanotated dance, work of Artist-in-Residence.

581. Creative Dance for Children. (TED 581). Cr. 3

Approaches to creative dance experiences for children stressing the development of aesthetic and kinesthetic awareness. Focus on comprehensive arts and curriculum related materials.

582. Creative Dance Movement for the Pre-School Child. (TED 582). Cr. 3

Creative dance activities; manipulative, musical, imaginative and kinesthetic approaches to movement.

583. Dance in the Recreational Setting. Cr. 2

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.

590. Independent Study in Dance. Cr. 1-4(Max. 12)

Prereq: major or minor in dance and consent of adviser and instructor. Independent work in dance under faculty guidance.

601. Technique Laboratory III. Cr. 1-4*

Prereq: DNC 401 or consent of instructor. Modern Dance technique, advanced level.

621. Advanced Ballet. Cr. 1-4*

Prereq: DNC 221 or equiv. Continuation of study in ballet technique

with emphasis on allegro and adagio work.

651. Seminar in Contemporary Issues. Cr. 1-4(Max. 6)

Examination of specific topics related to the dance discipline: criticism, aesthetics, philosophy, dance and the handicapped, dance and the elderly, dance movement therapy, effort/shape, Laban pedagogy, twentieth century choreographers.

661. Dance Company II. Cr. 1-10*

Prereq: DNC 561 or equiv. Required for graduate students in the choreography and performance emphasis. Admission by audition. Performing company. Performing, choreographic and/or production responsibilities.

681. Seminar in Teaching Creative Dance. (DNE 681). Cr. 2

Investigation of theories of creativity, learning theories and their significance in the teaching of dance. Analysis of the creative aspects of the contemporary dance curriculum.

683. Historical Foundations of Dance. Cr. 2

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.

684. Blacks in American Dance. Cr. 2

Prereq: DNC 231 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.

685. Seminar in Dance Techniques. (DNE 685). Cr. 2

Investigation, practice and analysis of classical ballet and modern dance technique; their similarities and differences, through readings, films and practicals.

687. Problems in Concert Production. (Smr: 6). Cr. 2-4

Consideration of details of dance production; costume, set design, lighting, organization, management and promotion. Field work component.

750. (P E 750) Research Methods. (R P 760). Cr. 3

Empirical, philosophical and historical research in dance, health education and recreation and park services. Emphasis on ability to critically distinguish between these areas and the mode of research. Critical analysis of research literature. Research proposal writing techniques.

785. Laboratory in Choreography. Cr. 2

Prereq: DNC 555 or consent of instructor. Preparation for master's thesis or project in choreography.

787. Dance Ethnology. Cr. 2

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.

790. Directed Study in Dance. Cr. 1-3

Prereq: written consent of adviser and graduate officer. Open only to students in a designated dance curriculum option.

798. Field Work in Dance. Cr. 1-3

Prereq: graduate or post-degree student in dance. Supervised volunteer work in an approved setting.

799. Master's Essay and Project Direction. (DNE 799). Cr. 3

Prereq: consent of adviser. Development and review of project outlines. Graduate students present proposed studies for analysis by faculty and students in seminar.

Dance Education (DNE)

383. (P E 345) Dance Education Curriculum, K-12. Cr. 2

Prereq: P E 341 or equiv. Instructional materials in dance movement exploration and problem solving, rhythmic skills, dance making, traditional dance steps, and in the recreational forms of dance with application to the school dance program.

441. Student Teaching and Seminar I. (Ed: 14). Cr. 2-6

Prereq: 2.5 h.p.a. in major; admission to student teaching. Offered for S and U grades only. First experience in student teaching.

442. Student Teaching and Seminar II. (Ed: 14). Cr. 2-6

Prereq: 2.5 h.p.a. in major; admission to student teaching; DNE 441. Offered for S and U grades only. Second experience in student teaching.

481. (DNC 481) Methods in Modern Dance and Ballet. Cr. 3

Prereq: DNC 102 and DNC 122 or equiv. Analysis of instructional methods and materials in modern dance and ballet, including technique, improvisation, composition, curriculum planning and evaluation.

681. (DNC 681) Seminar in Teaching Creative Dance. Cr. 2

Investigation of theories of creativity, learning theories and their significance in the teaching of dance. Analysis of the creative aspects of the contemporary dance curriculum.

685. (DNC 685) Seminar in Dance Techniques. Cr. 2

Investigation, practice and analysis of classical ballet and modern dance technique; their similarities and differences studied, through readings, films and practicals.

750. (P E 750) Research Methods. (R P 760) (H E 750) (DNC 750). Cr. 3

Empirical, philosophical and historical research in dance, health education and recreation and park services. Emphasis on ability to critically distinguish between these areas and the mode of research. Critical analysis of research literature. Research proposal writing techniques.

799. (DNC 799) Master's Essay and Project Direction. Cr. 3

Prereq: consent of adviser. Development and review of project outlines. Graduate students present proposed studies for analysis by faculty and students in seminar.

Driver Education (D E)

573. Teaching Driver Education and Traffic Safety. (TED 594). Cr. 3

Prereq: valid Michigan driver's license.

574. Problems in Driver Education and Traffic Safety. (TED 574). Cr. 3

Prereq: D E 573. Issues and concerns in professional preparation to meet traffic safety needs of schools and communities.

575. Seminar in Driver Education and Traffic Safety. (TED 575). Cr. 3

Prereq: D E 574. Behavioral, administrative, and professional aspects of the teaching role in driver and traffic safety education.

Health Education (H E)

330. Health of the School Child. (TED 430). Cr. 3

Health status and problems of school age children. Role of teacher in health promotion and protection; teacher observation and classroom first aid for health problems.

333. School Health Education. Cr. 3

Prereq: H E 330 or consent of instructor. Principles, curriculum development, and techniques in teaching health at elementary and secondary school levels.

434. Reproductive Health Education. Cr. 2

Prereq: H E 333 or consent of instructor. Program planning, curriculum development and classroom teaching strategies in the areas of human sexuality, reproductive health and venereal disease; satisfies Michigan Department of Education requirement for qualification to teach in these areas.

480. Fieldwork in Health Education. Cr. 1-3(Max. 3)

Prereq: professional courses in health education and consent of adviser; coreq: student teaching experience. Offered for S and U grades only. Observational experience in health education and implementation of health education unit by student in a variety of settings. Contact departmental chairperson before semester begins.

560. Role of the Teacher in School Health. (TED 530). Cr. 2

Not open to undergraduate minors or graduate majors in Health Education. Designed for classroom teachers. Recent information on disease and defects of school age children; utilization of school health services; classroom management and first aid for medical problems.

564. Health and the Pre-School Child. Cr. 3

Prereq: EDP 331 or consent of instructor. Conditions and practices which protect and promote healthy growth in the young child; environmental sanitation, preventive health practices, care in case of illness or injury, meeting emotional health needs, and early sex education.

565. Health and the Aging Process. Cr. 3

Dynamics of later life with specific emphasis on health maintenance. Physiological aspects of aging and an overview of chronic conditions of aged. For preprofessionals and paraprofessionals in the field of services to the aging.

640. History and Philosophy of Health Education. Cr. 2

Major trends in health education in the United States from 1950 to the present; social and scientific factors significant in the development of health education.

641. Curriculum in Health Instruction I. Cr. 2

Principles and practices of program planning, curriculum development, and evaluation in school health education.

642. Curriculum in Health Instruction II. Cr. 2

Prereq: graduate major in Health Education. Development of skills needed to implement health instructional performance objectives. Teaching strategies and evaluation of learning resources.

643. Health Problems of Children and Youth. (TED 533). Cr. 2

Prereq: graduate major in Health Education or consent of instructor. Role of the health educator in meeting school and community health problems of children and youth. School health services delivery systems and the school's role in promotion of child health.

644. Workshop in Health Education. Cr. 1-3(Max. 6)

Prereq: teaching experience. Current interest areas in health education: sexuality, nutrition, substance abuse, safety. Lectures, discussion and individual or group projects.

648. Substance Use and Abuse. Cr. 2

Medical and pharmaceutical information on medicines and drugs; substance use and abuse patterns and their relation to society; school/community abuse problems and community service programs for treatment and prevention.

653. Needs Assessment in Health Education. Cr. 2

Prereq: graduate standing. Exploration of health behavior models and their implications for behavior change; situational analysis and its relation to health education program planning; using educational diagnoses and prescriptions in the health care setting.

660. Health Education: A Multidisciplinary Intervention. Cr. 2

Primarily for any professional health care student or practitioner. Students explore the philosophical bases for health education; gain knowledge of its models, strategies, and applications; and examine the ethical and legal implications of its practice.

741. Current Issues in Health Education. Cr. 2

Prereq: graduate major in Health Education. Exploration of current trends and issues in health education in the United States and world. Implications for program planning and development.

743. Administration of School Health Programs. Cr. 2

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, students, Board of Education and the community.

750. (P E 750) Research Methods. Cr. 3

Empirical, philosophical, and historical research in dance, health education and recreation and park services. Emphasis on ability to critically distinguish between these areas and the mode of research. Critical analysis of research literature. Research proposal writing techniques.

752. Fieldwork in Clinical Health Education. Cr. 3

Prereq: consent of adviser. Open only to Health Education majors. Offered for S and U grades only. Supervised experience in health education program planning, implementation, and evaluation in a health care setting.

754. (I T 711) Instructional Design. Cr. 3

Prereq: I T 511 or L S 636 or consent of instructor. Principles of instructional design, including instructional task analysis, front-end analysis, criterion testing and hierarchical sequencing. Students will apply these principles to developing relevant instructional designs.

755. (I T 715) Educational Product Evaluation. Cr. 3

Prereq: EER 763 and I T 711 or consent of instructor. Developmental and evaluation research proposals, technique for assessing sequential methods of large curriculum research, instructional packages.

795. Directed Study in Health Education. Cr. 1-3(Max. 3)

Prereq: written consent of adviser and graduate officer.

799. Terminal Master's Seminar and Project. Cr. 3

Prereq: consent of adviser. Development and review of project and progress.

899. Master's Thesis Research and Seminar. Cr. 1-8(8 req.)

Prereq: consent of adviser.

Health (HEA)

- 231. Dynamics of Personal Health. Cr. 2**
Critical health issues relevant to college students today; application to personal and family needs.
- 232. Dynamics of Community and Environmental Health. Cr. 2**
Ecological factors associated with human health; environmental pollution and other health problems of communities; organized efforts to deal with them. Field trips.
- 233. First Aid and CPR. Cr. 3**
Theory and practice. Students can qualify for standard national certificates in first aid and CPR.
- 337. (P E 357) Physiology of Exercise. Cr. 3**
Prereq: six credits in human anatomy and physiology. Human functions and their response to physical stress.
- 338. (P E 358) Kinesiology. Cr. 3**
Prereq: six 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.
- 390. Individual Problems in Health. Cr. 1-3(Max. 03)**
Prereq: HEA 231 or 232 and consent of instructor. Solving a specific personal health problem or studying a specific community health problem under the guidance of divisional staff.
- 532. (P E 632) Fitness Leadership. Cr. 4**
Prereq: ANA 301 and HEA 337 or consent of instructor. Physiology, anatomy, psychology and methodology of group fitness leadership.
- 533. (P E 533) Principles of Athletic Training. Cr. 3**
Prereq: ANA 301 or consent of instructor. Needs and responsibilities of an athletic trainer-teacher in high school or college setting. Information, skills required in administering athletic training room.
- 534. (P E 534) Prevention and Care of Athletic Injuries. Cr. 3**
Prereq: HEA 337 or equiv. The training room: its purpose, equipment, and management. Principles and techniques of treating sprains, knee, muscle, and other injuries of the locomotor system and of the skin. Application of heat, light, diathermy, water; massage and special exercises. Bandaging, first aid procedures; training table; observation and directed experiences.
- 630. Survey of Anatomy and Physiology I. Cr. 2**
Prereq: consent of adviser. Introduction to, and review of, concepts, laws, and principles of anatomy and physiology as they apply to dance, health, education, physical education, and recreation and park services. The embryological approach; skeletal, muscular, and nervous systems.
- 631. Survey of Anatomy and Physiology II. Cr. 2**
Prereq: HEA 630. Continuation of HEA 630. The circulatory, respiratory, digestive, excretory, endocrine and reproductive systems.
- 634. Human Physical Growth. Cr. 2**
Prereq: four credits in human anatomy and physiology. 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 growth.
- 635. The Nation's Health. Cr. 2**
Survey of national 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.

Physical Education (P E)

- 191. Professional Perspectives in Physical Education. Cr. 1**
Required upon admission to the professional curriculum. Introduction to the profession and academic dimensions of physical education.
- 251. Officiating Techniques. (PEA 210). Cr. 1**
Development of competence in officiating selected sports. Skills, signals, rules, and interpretations; personal preparation, officials' associations, supplementary officials, opportunity for certification; rule differences for men's and women's competition, where appropriate; regularly scheduled for the following sports: baseball, basketball, football, volleyball; others as needed.
- 256. Individual Problems in Physical Education. Cr. 1-3(Max. 3)**
Prereq: consent of adviser and chairperson. Solving a specific problem under the guidance of the divisional staff.
- 258. Physical Education in Secondary Schools: Individual Sports. Cr. 3**
Prereq: score of two on appropriate skill tests as listed in the physical education handbook. Methods and materials of teaching individual sports at the middle and high school level including classroom management and motivation, organization of personnel and use of facilities.
- 259. Physical Education in Secondary Schools: Team Sports. Cr. 3**
Prereq: score of two on appropriate skill tests as listed in the physical education handbook. Methods and materials of teaching team sports at the middle and high school level, including classroom management and motivation, organization of personnel and use of facilities.
- 340. Human Growth and Development for Physical Education. Cr. 2-3**
Parks and Recreation majors elect two credits; Physical Education majors elect three credits. Human growth and developmental processes in childhood, adolescence and adulthood with major emphasis on motor development and perceptual motor development. Personality, psychological and cognitive development. Includes a component on special education, addressing characteristics and causes of various handicapping conditions as well as methods of assessment and teaching handicapped persons.
- 341. Movement Education. Cr. 4**
Prereq: admission to senior college. Movement education approaches to teaching children to move using games, dance, and gymnastics; grades K-6.
- 344. Theory and Practice of Aquatics. (PEA 120). Cr. 2**
Prereq: PEA 119 or lifesaving 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.
- 345. Dance Education Curriculum, K-12. (DNC 383) (DNE 383). Cr. 2**
Prereq: P E 341 or equiv. Instructional materials in dance movement exploration and problem solving, rhythmic skills, dance making, traditional dance steps, and in the recreational forms of dance with application to the school dance program.
- 350. Instructional Methods in Physical Education. Cr. 4**
Prereq: admission to senior college. Planning for instruction in

physical education with emphasis on unit and lesson planning, teaching styles, principles of motor learning and developmental curriculum planning.

352. Human Relations in Physical Education. Cr. 2

Human interaction experiences in a small group setting; getting in touch with one's self, learning how behavior is seen by and affects others; recognizing and identifying interaction processes; student visibility in the physical education setting.

354. Cultural Foundations of Physical Education. Cr. 3

Nature and methods of analysis of different kinds of philosophical problems as they arise in sport, dance and general physical education context; examination of the historical foundations and contemporary social significance of sport, dance and physical education.

357. Physiology of Exercise. (HEA 337). Cr. 3

Prereq: PSL 322, ANA 301 or equiv. Physiological basis of human physical performance.

358. Kinesiology. (HEA 338). Cr. 3

Prereq: ANA 301, PSL 322 or equiv. 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.

441. Student Teaching and Seminar I. (Fld: 15; Smr: 3). Cr. 2-6

Prereq: admission to student teaching as listed in physical education handbook. Offered for S and U grades only. First experience in student teaching.

442. Student Teaching and Seminar II. (Fld: 15; Smr: 3). Cr. 2-6

Prereq: P E 441. Offered for S and U grades only.

451. Coaching Methods. Cr. 2(Max. 6)

Techniques; advanced tactics and strategy for the skilled player; methods of team selection and management; planning practices and schedules in selected sports: basketball, baseball, football, volleyball, softball, swimming, track and field, tennis, golf.

452. Field Experience in Coaching. Cr. 2-4(Max. 4)

Prereq: Water Safety Instructor or P E 451 or consent of instructor. Supervised volunteer leadership in coaching programs.

533. Principles of Athletic Training. (HEA 533). Cr. 3

Prereq: ANA 301 or consent of instructor. Specific needs and responsibilities of an athletic trainer-teacher in a high school or college setting. Emphasis on information, skills required in administering an athletic training room.

534. Prevention and Care of Athletic Injuries. (HEA 534). Cr. 3

Prereq: ANA 301 or consent of instructor. The training room: its purpose, equipment and management. Principles and techniques of treating sprains, knee, muscle and other injuries of the locomotor system and the skin. Application of heat, light, diathermy, water, massage and special exercises. Bandaging, first aid procedure; training table; observation and directed experiences.

540. Introduction to Adaptive Physical Education. (R P 590). Cr. 3

Prereq: admission to senior college in physical education, recreation, or special education. History, objectives, program scope and beginning field work experience.

541. Adaptive Physical Education: Methods and Materials. (R P 591). Cr. 3

Prereq: admission to senior college in physical education, recreation, or special education. Basic approaches to teaching and learning in an adaptive physical education. Curriculum development, instructional planning, teaching aids, materials for school and agency problems.

542. Adapted Sports and Recreation for the Handicapped. (R P 592). Cr. 3

Prereq: admission to senior college in physical education, recreation, or special education. Programming, instructional methods and coaching techniques in recreational and competitive sport for the handicapped individual.

550. Evaluation and Measurement in Health and Physical Education. Cr. 2

Prereq: senior standing. Elementary statistical methods and evaluative techniques applied to health, physical education, and recreation. Test construction and standard measurement approaches.

555. Movement Education for Children. (TED 580). Cr. 2

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.

632. Fitness Leadership. (HEA 532). Cr. 4

Prereq: ANA 301, P E 357 or consent of instructor. Physiological and anatomical principles of physical fitness. Optimum nutrition for health, weight control and performance. Construction of fitness programs and evaluation of fitness levels.

635. Internship for Physical Fitness Leadership. Cr. 3

Prereq: P E 632, HEA 233. Experience in phases of assigned organization relative to health and exercise programs for various populations.

651. History of Physical Education. Cr. 3

The examination of physical education as a significant cultural form from early civilizations to the present.

654. Workshop in Physical Education and Athletics. Cr. 2-4(Max. 8)

Teachers, school administrators and consultants working cooperatively on current problems in physical education and athletics.

656. Honors Projects. Cr. 1-3(Max. 3)

Prereq: senior standing, consent of adviser and chairperson. Open only to physical education majors. Individual study and advanced seminar work for students of high scholastic standing.

657. Psychology of Sport. Cr. 3

Prereq: introductory psychology course. Principles and theories of thought and action as they relate to sport; theories of motivation, learning, and personality development.

750. Research Methods. (R P 760) (DNC 750) (DNE 750) (H E 750). Cr. 3

Empirical, philosophical, and historical research in dance, health education and recreation and park services. Emphasis on ability to critically distinguish between these areas and the mode of research. Critical analysis of recent literature. Research and proposal writing techniques.

751. Foundations of Physical Education. Cr. 3

Analysis of physical education as an academic discipline, both in its historical development and in the contemporary setting.

754. Organization, Administration and Supervision of Physical Education and Athletics. Cr. 4

Responsibilities and concerns of administrators of physical education and athletic programs in educational institutions. Basic administrative philosophy, program goals, and policies and procedures relative to directing educationally-focused physical education and athletic programs. Problem-solving skills concerning personnel, budgets, program management, and supervision.

755. Curriculum Planning in Physical Education. Cr. 2

Principles of curriculum design and their application to programs of physical education; current questions and issues in curriculum research.

758. Biomechanical Analysis of Motor Activity. Cr. 2

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.

790. Directed Study in Physical Education. Cr. 2

Prereq: written consent of adviser and graduate officer.

799. Master's Essay and Project Direction. Cr. 3

Prereq: consent of adviser. Development and review of project outlines. Graduate students present proposed studies for analysis by faculty and students in seminar.

841. Current Issues in Physical Education. Cr. 2

Examination of contemporary problematical questions in physical education with emphasis on problem-solving techniques.

843. Sociology of Sport. Cr. 3

Prereq: introductory sociology course. Investigation of sport as a social and cultural institution; social and cultural institution; social relationships peculiar to different sports.

844. Dimensions of the Sport Experience. Cr. 3

Examination of the phenomenological nature of the sport experience and the significance of the experience to the participant.

853. Motor Learning. Cr. 2

Prereq: P E 750. Principles of motor learning. Review of research findings in the physical performance field. Application to the teaching and learning of motor skills.

856. Exercise Physiology. Cr. 3

Response of human physiologic processes to various factors. Physiologic mechanisms underlying these responses. Methods of measuring responses; aerobic and anaerobic capacity, muscle strength and endurance, and body composition. Techniques of research.

858. Seminar in Professional Literature. Cr. 2-4

Examination of the literature on specific topics within the physical education profession.

875. Internship in Sports Administration. Cr. 4

All facets of an assigned organization; interaction with management personnel and the general public.

899. Master's Thesis Direction. Cr. 1-8(8 req.)

Prereq: consent of adviser.

Physical Education Activity (PEA)

101. 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.

102. Individualized Skills Development Laboratory. Cr. 1-4(Max. 4)

Prereq: written consent of chairperson for non-varsity athletes. Varsity athletes may elect only once per year for one credit per sport during the term of competition. Physical education credit for significant development and improvement of skills and associated knowledge in activity areas beyond the general education curriculum of the Division.

103. Sports: Concepts and Conditioning. Cr. 2

Theoretical and practical aspects of conditioning for sport and life in general. Physical conditioning and skill development in a wide variety of sports and the psycho-somatic and somato-psychic implications relevant to physical activity in a sports context.

110. Swimming: Elementary. Cr. 1

Fundamental skills and knowledge in aquatics for beginners.

111. Swimming: Intermediate. Cr. 1

Prereq: basic swimming skill. Proficiency in all swimming strokes; beginning diving techniques.

112. Swimming: Advanced. Cr. 1

Prereq: intermediate swimming skill. Proficiency in all swimming strokes; deep water skills and endurance.

113. Synchronized Swimming. Cr. 1

Practical and theoretical techniques of synchronized and rhythmic swimming. Basic and advanced stunts and formations, selection of suitable music and appropriate costume, demonstration of the resultant skill in a culminating performance.

114. Intermediate Synchronized Swimming. Cr. 1

Prereq: advanced swimming ability. Continuation of PEA 113; more advanced work in skills areas.

115. Advanced Synchronized Swimming. Cr. 1

Prereq: advanced swimming ability. Improving personal skills and developing routines and coaching abilities.

116. Diving. Cr. 1

Prereq: intermediate swimming skill. Analysis and practice of diving techniques.

117. Scuba Diving. Cr. 2

Prereq: PEA 119 and medical approval by University Health Service. Theory and practice of the proper use of self-contained underwater breathing apparatus.

118. Water Polo. Cr. 1

Prereq: advanced swimming ability. Participants must wear unbreakable eyeglasses; no contact lenses. Analysis and practice of skills, team play, strategy, rules, etiquette, and history of the game of water polo.

119. Lifesaving. Cr. 2

Prereq: advanced swimmer. Lifesaving and water safety procedures. Leads to lifesaving certification.

120. (P E 344) Theory and Practice of Aquatics. Cr. 2

Prereq: PEA 119. Instructional methods and techniques in aquatics, water safety and survival; swimming program development; pool and waterfront administration and management. Can lead to American Red Cross Water Safety Instructor's Certificate.

121. Canoeing. Cr. 1

Prereq: survival swimming ability. Introduction to the historical background of canoeing and canoes; terminology, safety, canoe games; strokes and paddling techniques; tripping. Leads to certificate in Basic Canoeing.

130. Aerobics: Cardio-Respiratory Conditioning. Cr. 1

Carefully controlled, personalized program activities designed to maintain or improve the level of cardio-respiratory conditioning of the participant; prescription for future levels of activity from the class experience.

131. Alpinism-Rock Climbing. Cr. 1

Prereq: good physical condition. Introduction to the basic principles and techniques of technical rock climbing. Field trips.

132. Archery. Cr. 1

Analysis and practice of skills, information on scoring, rules, tournament competition.

133. Badminton. Cr. 1

Analysis and practice of basic strokes, singles and doubles play, strategy, rule interpretation.

134. Bicycling. Cr. 1

Fundamental skills and knowledge of bicycling; bicycling safety and laws, care and maintenance of bicycles, riding and tripping techniques. One day field trip required.

135. Billiards: Beginning. Cr. 1

Basic skills and technique; history, rules, equipment and game courtesy.

136. Billiards: Intermediate. Cr. 1

Prereq: basic billiards skills. Continuation of PEA 135 with introduction of 14.1 pocket billiards.

137. Billiards: Advanced. Cr. 1

Prereq: intermediate billiards skills. Advanced skills, technique and play strategy.

138. Bowling: Beginning. Cr. 1

Analysis and practice of skills. Information on scoring procedures, rules, tournament play. A bowling fee is required for the course.

139. Bowling: Advanced. Cr. 1

Prereq: basic bowling skills. Advanced bowling technique: physics and physiology applied to bowling. Systems to develop strike lines and to convert splits and spares. A bowling alley fee is required for the course.

140. Creative Relaxation. Cr. 2

Analysis and practice of creative relaxation as applied to sport performance and other life functions.

141. Golf: Beginning. Cr. 1

Analysis and practice of fundamentals focused on development of correct form in the use of different clubs.

142. Golf: Intermediate. Cr. 1

Prereq: basic golf skills. Refinement of the basic skills of chipping, pitching, and putting; development of the short game.

143. Golf: Advanced. Cr. 1

Prereq: intermediate golf skills. Emphasis on the long game; rules, game courtesy, and golf course management.

144. Gymnastic Events. Cr. 1

Analysis and practice of basic gymnastic techniques and events; floor exercise and apparatus.

145. Gymnastics: Rhythmic. Cr. 1

Combined gymnastic exercise and dance movement; use of balls, hoops, jump ropes, ribbons and indian clubs in a rhythmic routine.

146. Handball. Cr. 1

Analysis and practice of skills, singles and doubles play, strategy, rule interpretation.

147. Handball: Advanced. Cr. 1

Prereq: basic handball skills. Review of basic skills and understanding of handball with concentration on advanced techniques.

148. Hatha Yoga. Cr. 1

Analysis and practice of basic techniques of physical yoga.

149. Orienteering. Cr. 1

Compass terminology and games, map study, use of map and compass

as a tool in the field.

150. Racquetball: Beginning. Cr. 1

Basic strokes, history, rules, equipment and game courtesy.

151. Racquetball: Intermediate. Cr. 1

Prereq: basic racquetball skills. Refinement of basic strokes; introduction to singles game and singles competition.

152. Racquetball: Advanced. Cr. 1

Prereq: intermediate racquetball skills. Advanced skills and techniques; singles and doubles game strategy; optional competition experience.

153. Skiing: Conditioning. Cr. 1

Prereq: beginning skills of snow skiing. Analysis and practice of basic skills and techniques, prescribed conditioning activities and simulated skiing.

154. Skiing: Cross Country. Cr. 1

Fundamental skills of cross country skiing; history, safety precautions, and selection of equipment. Additional fee required for equipment and lessons.

155. Skiing: Downhill. Cr. 1

Analysis and practice of basic skills and techniques, safety, selection, purchase and care of equipment. Taught at local ski slope.

156. Skiing: Advanced Downhill. Cr. 1

Prereq: basic skiing skills. Taught at local ski slope.

157. Squash: Beginning. Cr. 1

Analysis and practice of basic strokes, strategy, rule interpretation.

158. Squash: Advanced. Cr. 1

Prereq: basic squash skills. Skills and strategies needed for tournament competition; rules and officiating procedures.

159. Stunts and Tumbling. Cr. 1

Analysis and practice of elementary techniques in mat tumbling, trampoline, vaulting, hand-balancing, floor calisthenics.

160. Tennis: Beginning. Cr. 1

Analysis and practice of basic strokes, singles and doubles play, strategy, rule interpretation.

161. Tennis: Intermediate. Cr. 1

Prereq: basic tennis skills. 7216.

162. Tennis: Advanced. Cr. 1

Prereq: intermediate tennis skills. Advanced stroke instruction, practice of skills and strategies needed for tournament play.

163. Trimmastics. Cr. 1

Organized exercise activities designed for conditioning and figure improvement. Information on weight control and development of a personal exercise program.

164. Weightlifting and Training: Beginning. Cr. 1

Analysis and practice of approved lifting techniques and use of weight training for conditioning purposes.

165. Weightlifting and Training: Intermediate. Cr. 1

Prereq: basic weight training skills. Preparation in a variety of weight training and conditioning programs designed for high-level physical competition and athletics.

170. Aikido. Cr. 1

Analysis and practice of fundamental skills; strategy and philosophy of aikido as a method of personal defense.

- 171. Fencing: Beginning. Cr. 1**
Analysis and practice of skills, rules, strategy, conduct of competitive means.
- 172. Fencing: Advanced. Cr. 1**
Prereq: basic fencing skills.
- 173. Judo: Beginning. Cr. 1**
Analysis and practice of fundamental skills; strategy and philosophy of judo as a method of personal defense and competitive sport.
- 174. Judo: Advanced. Cr. 1**
Prereq: basic judo skills. Analysis and practice of advanced skills in judo; throwing while moving, using free sparring form; preparation for competition.
- 175. Karate: Beginning. Cr. 1**
Analysis and practice of fundamental skills; strategy and philosophy of karate as a method of personal defense and competitive sport.
- 176. Karate: Intermediate. Cr. 1**
Prereq: basic karate skills. Analysis and practice of intermediate skills and strategies using combination training and higher Kata.
- 177. Personal Defense: Beginning. Cr. 1**
Analysis and practice of a variety of defense skills for use in warding off attacks on one's person.
- 178. Personal Defense: Intermediate. Cr. 1**
Prereq: basic personal defense skills. Personal defense theory; advanced self-defense techniques with an emphasis on avoidance rather than confrontation.
- 179. Personal Defense: Advanced. Cr. 1**
Prereq: intermediate personal defense, judo, or aikido skills. Personal defense theory; advanced self-defense techniques with emphasis on avoidance rather than confrontation.
- 180. Wrestling. Cr. 1**
Analysis and practice of fundamental skills, rules, strategy; conduct of amateur matches.
- 181. Advanced Karate. Cr. 1**
Prereq: PEA 175 and 176 or consent of instructor. Advanced Kata, Kumite, and combination techniques.
- 182. Stress Control Through Martial Arts. Cr. 1**
Coordination of mind and body for precision control of personal space in dealing with problems of doubts, indecision, fear and surprise.
- 183. Intermediate Aikido. Cr. 1**
Prereq: P E 170. Analysis and practice of more advanced skills, techniques and philosophy of Aikido as a modern martial art.
- 184. Advanced Aikido. Cr. 1**
Prereq: PEA 170 and 183 or consent of instructor; valid health card. Instruction in and practice of advanced techniques, controls and throws that assume the knowledge and skills acquired in beginning and intermediate courses.
- 200. Wheelchair Basketball. Cr. 1**
Prereq: consent of instructor; priority given to handicapped students and physical education majors. Acquisition of fundamental skills of wheelchair basketball; knowledge of rules and regulations, physical classification system, and basic offensive and defensive strategies.
- 201. Basketball: Women. Cr. 1**
Analysis and practice of skills, team play, strategy, rule interpretation.
- 202. Basketball: Men. Cr. 1**
Analysis and practice of skills, team play, strategy, rule interpretation.

- 203. Curling. Cr. 1**
Basic skills and techniques; rules, history and equipment.
- 204. Field Hockey. Cr. 1**
Analysis and practice of skills, team play, strategy, rule interpretation.
- 205. Field Lacrosse. Cr. 1**
Skills, knowledge of rules and strategies of playing field lacrosse; history and social significance of the activity.
- 206. Power Volleyball. Cr. 1**
Analysis and practice of skills, team play, strategy, rule interpretation.
- 207. Soccer. Cr. 1**
Analysis and practice of skills, team play, strategy, rule interpretation.
- 208. Touch Football. Cr. 1**
Analysis and participation in the skills and game patterns of touch football, with special emphasis on team play.
- 210. (P E 251) Officiating Techniques. Cr. 1**
Development of competence in officiating selected sports. Skills, signals, rules, and interpretation; personal preparation, officials' associations, supplementary officials; opportunity for certification; rule differences for men's and women's competition, where appropriate. Regularly scheduled for the following sports: baseball, basketball, football, volleyball; others as needed.

Recreation And Park Services (R P)

- 161. Introduction to the Leisure Industry. Cr. 1**
Nature and scope of recreation and park services; related career opportunities.
- 260. Principles of Leadership and Recreation Programming. Cr. 3**
Theories and dynamics of individual and group leadership; recreation programming for general and special populations.
- 264. Camp Leadership. Cr. 4**
Values and objectives of organized camps; program planning, staff responsibilities; campcraft skills. Opportunity to earn A.C.A. certification. Weekend trip required.
- 265. Arts and Crafts for Recreation Programs. Cr. 2**
Exploration of arts and crafts techniques, leadership and program operations.
- 267. Music and Dramatics in Recreation Programs. Cr. 2**
Exploration of music and dramatics techniques, leadership and program operations.
- 360. Social Recreation Programming. Cr. 3**
Prereq: R P 260 or consent of instructor. Techniques and practice in planning and conducting social activities with emphasis on social development and group participation. Field programming and leadership assignments.
- 362. Introductory Field Work. Cr. 3**
Prereq: one month advance consent of instructor. Supervised observation and leadership roles in an assigned recreation/park setting.
- 363. Recreation Sports and Activities for Open Spaces. Cr. 3**
Operational games and activity programming aspects of outdoor recreation facilities; types and functions of open spaces, leadership and management roles and responsibilities.

- 367. Introduction to Therapeutic Recreation. Cr. 3**
Scope and rationale of the special area; examination of the needs of special populations; program considerations.
- 462. Internship. Cr. 1-6(Max. 12)**
Prereq: one month advance consent of adviser. Open only to recreation and park services majors. Placement in a selected recreation setting to meet the student's professional goals. Intensive involvement in the agency's operations.
- 463. Philosophy of Recreation and Park Services. Cr. 3**
Open only to recreation and park service majors. Nature of the recreation experience and its importance; history and development of the profession; organizations, trends, and directions in leisure services.
- 465. Recreation and Park Administration. Cr. 3**
Administration of recreation and park systems with emphasis on urban agencies. Administrative functions, departmental structures and responsibilities.
- 561. Facility Maintenance in Recreation and Park Services. Cr. 3**
Facility maintenance and operational considerations for recreation spaces and buildings.
- 562. Advanced Field Work. Cr. 3-6(Max. 12)**
Prereq: one month advance consent of instructor. Specialized leadership/management training in an assigned recreation/park setting.
- 564. Camp Administration. Cr. 3**
Managerial aspects of camp operations; programming for various age groups and populations.
- 565. Recreation Services for the Aging. Cr. 3**
Programming for the aged and the aging in a variety of leisure settings; communication of program availability and stimulation of participation.
- 566. Independent Study. Cr. 1-2(Max. 6)**
Prereq: advance consent of instructor. Supervised research, applied or action, in the student's area of concentration or interest.
- 568. Wilderness Leadership. Cr. 3**
Prereq: basic course in first aid. Leadership of groups in wilderness settings; equipment, skills, preparation for trips. Weekend trip required.
- 569. Travel Camping. Cr. 1-4(Max. 8)**
Offered for S and U grades only for graduate students. Supervised travel course, involving camping within and outside of the state, designed to increase awareness of outdoor recreation, related facilities and services.
- 590. (P E 540) Introduction to Adaptive Physical Education: Methods and Materials. Cr. 3**
Prereq: admission to senior college in physical education, recreation or special education. History, objectives, program scope and beginning field work experience. Basic approaches to teaching and learning in adaptive physical education.
- 591. (P E 541) Adaptive Physical Education: Methods and Materials. Cr. 3**
Prereq: admission to senior college in physical education, recreation, or special education. Basic approaches to teaching and learning in adaptive physical education. Curriculum development, instructional planning, teaching aids, materials for school and agency programs.
- 592. (P E 542) Adapted Sports and Recreation for the Handicapped. Cr. 3**
Prereq: admission to senior college in physical education, recreation or special education. Programming, instructional methods and coaching techniques in recreational and competitive sport for the handicapped individual.
- 593. Introduction to Facility Planning and Design. Cr. 3**
Fundamentals of planning and design emphasizing leisure facilities in the urban setting; elementary studio design projects and field inspections.
- 596. Readings in Recreation and Park Services. Cr. 1-2(Max. 4)**
Supervised, independent readings in the field of recreation and/or parks designed to expand the student's knowledge of the field or a specific part of the field.
- 598. Therapeutic Terminology and Applications. Cr. 2**
Study of medical and therapeutic recreation terminology as used in a variety of leisure-related settings; techniques for client/patient management discussed and analyzed.
- 599. Mental Health and the Leisure Services. Cr. 2**
Relationships of mental health and leisure time; roles of recreation and the leisure services as preventative and rehabilitative approaches.
- 660. Outdoor Education. Cr. 3**
Philosophical and historical background, facilities, programming, and administration of outdoor education experiences. Emphasis on outdoor interpretation activities for all age levels.
- 661. (GEG 623) Land and Leisure: Studies in Recreational Geography. Cr. 3**
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.
- 664. Legal Issues in Leisure Service Systems. Cr. 3**
Identification and exploration of legal concepts and issues related to professional leisure and recreational agencies and services.
- 665. Supervision and Management in Leisure Service Delivery Systems. Cr. 3**
Supervision of recreation personnel; developing and managing leisure resources; decision making, communication and public relations techniques.
- 666. Therapeutic Recreation: Activity and Management Techniques. Cr. 3**
Prereq: R P 567 or consent of instructor. Conducting therapeutic activities; management functions and methodology; future perspectives.
- 667. Outdoor Recreation. Cr. 3**
Meaning, significance, historical background; facilities, agencies and programs at the federal, state and local levels; organizations and future projections.
- 668. Community Education and Recreation Services. Cr. 2**
Examines the role of leisure in relation to education and the place of school-sponsored recreation services; current trends in community education.
- 694. Urban Recreation Issues. Cr. 2**
The growth of urban living and leisure-related problems; national and international recreation issues; concerns and needs of ethnic and minority groups and other special populations; future projections and opportunities.
- 695. Community Organization and Resource Development. Cr. 2**
Basis for organizing community support for recreation and leisure services; factors and methodologies for development explored; emphasis on proposal writing for grants and project funding.

698. Leisure Counseling and Leisure Education. Cr. 3

Theory and techniques of leisure counseling and leisure education; implications for program development in public, commercial, industrial and other leisure-time settings.

760. (P E 750) Research Methods. Cr. 3

Empirical, philosophical and historical research in dance, health education and recreation and park services. Emphasis on ability to critically distinguish between these areas and the mode of research. Critical analysis of research literature. Research proposal writing techniques.

761. Foundations for Community Recreation Leadership. Cr. 3

Basis for community recreation; responsibilities of recreation and park personnel in providing programs and services; professional growth and development exercises.

765. Advanced Planning and Design. Cr. 3

Prereq: R P 593. Administrative responsibilities in land acquisition and facility construction; advanced facility planning and design consideration and applications; field inspections.

768. Recreation and Parks Finance Management. Cr. 3

Fiscal considerations for leisure service delivery systems; budget process, income sources; debt management; public and foundation grants.

790. Directed Study in Recreation and Park Services. Cr. 1-3(Max. 6)

Prereq: written consent of adviser and graduate officer. Open only to recreation and park services majors. Individual students or a group of students pursue an intensive guided research project.

799. Master's Project Direction. Cr. 3

Prereq: consent of adviser. Development and review of final project.

861. Current Professional Issues. Cr. 3

Prereq: recreation and park services major or consent of instructor. Identification, analysis and attempted solutions to current problems, challenges and issues facing the leisure services industry. Seminar and research assignments.

899. Master's Thesis Direction. Cr. 1-8(8 req.)

Prereq: consent of adviser. Development and review of Master's thesis.

FACULTY

Office: 261 Matthaei Building
Acting Director: Frederick A. Mulhauser

Professors

Istvan J. Danosi, Chalmer G. Hixson, Leon A. Lande (Emeritus), Joel G. Mason (Emeritus), Ruth L. Murray (Emerita), Frank L. Oktavec (Emeritus), Lawrence E. Russell (Emeritus), William N. Wasson (Emeritus)

Associate Professors

Mary L. Barnett, David L. Blievernicht, Newman H. Ertell (Emeritus), Jane C. Fink, Vernon K. Gale, Charles H. Lewis, Frank A. McBride, Frederick A. Mulhauser, Diane C. Pick, Robert T. Samaras, Julia M. Sanford (Emerita), Robert C. White, Ann G. Zirulnik

Assistant Professors

Eva Jablonski-Powers, Avanelle Kidwell, Juliana McEvers, Janet Prieur, Georgia Reid, Peter A. Roberts, William W. Sloan, John C. Wirth

Lecturer

Sylva O. Emodi

Instructors

Alex Cushnier, Michael T. Rhodes

Athletic Coaches

Vernon Payne, Christ Petrouleas

Assistant Athletic Coaches

Joseph R. Haklin, Allison K. Scruggs-Tookes, Walter Stasinski

Division Directory

Director	261 Matthaei; telephone: 577-4249
Assistant Director	267 Matthaei; telephone: 577-4249
Dance Department	125 Matthaei; telephone: 577-4273
Driver Education Department	267 Matthaei; telephone: 577-4249
Graduate Office	257 Matthaei; telephone: 577-4269
Health Education Department	262 Matthaei; telephone: 577-4265
Health Department	262 Matthaei; telephone: 577-4265
Physical Education Department	266 Matthaei; telephone: 577-4265
Recreation and Park Services Department	259 Matthaei; telephone: 577-4269
Intercollegiate Athletics	101 Matthaei; telephone: 577-4280
Address: Wayne State University, 5980 Cass, Detroit MI 48202.	



Law School

DEAN: JOHN C. ROBERTS

Academic Calendar 1982-1984

Summer Term, 1982

Registration.....	Mon.- Fri., May 17-21, 1982
Classes begin.....	Mon., May 24
Independence Day recess.....	Mon., July 5
Classes end.....	Fri., July 9
Examination period.....	Tues.- Fri., July 13-16
Summer term ends.....	Fri., July 30

First Year Summer Program, 1982

Registration and orientation.....	Thurs., June 10
Classes begin.....	Mon., June 14
Independence Day recess.....	Mon., July 5
Classes end.....	Fri., Aug. 6
Examination period.....	Mon.- Fri., Aug. 9-13

Fall Term, 1982

Registration—	
First year evening students.....	Mon., Aug. 16
First year day students.....	Fri., Aug. 20
All other students and graduate law students.....	Mon., Wed. and Thurs., Aug. 23, 25 and 26
Classes begin—	
First year evening students.....	Mon., Aug. 16
First year day students.....	Mon., Aug. 23
All other students.....	Mon., Aug. 30
Labor Day recess.....	Mon., Sept. 6
Registration for winter term, 1983.....	Thurs.- Mon., Nov. 18-22
Thanksgiving recess.....	Thurs.- Sun., Nov. 25-28
Classes end.....	Wed., Dec. 8
Review and reading period.....	Thurs.- Sun., Dec. 9-12
Examination period.....	Mon.- Thurs., Dec. 13-23
Fall term ends.....	Thur., Dec. 31
Holiday recess.....	Sat.- Sun., Dec. 25, 1982 - Jan. 2, 1983

Winter Term, 1983

Winter term begins.....	Sat., Jan. 1, 1983
Classes begin.....	Mon., Jan. 10
Spring recess.....	Sun.- Sun., Mar. 6-13
Classes resume.....	Mon., Mar. 14
Classes end.....	Sat., April 23
Review and reading period.....	Sun.- Sun., Apr. 24-May 1
Examination period.....	Mon.- Fri., May 2-13
Grading, consultation and final faculty meetings.....	Sat.- Sun., May 14-29
Academic year ends.....	Sun., May 29
Law School commencement.....	Sun., June 19

Summer Term, 1983*

Registration.....	Mon.- Fri., May 16-21
Classes begin.....	Mon., May 23
Independence Day recess.....	Mon., July 4
Classes end.....	Fri., July 8
Examination period.....	Tues.- Fri., July 12-15
Summer term ends.....	Fri., July 29

First Year Summer Program, 1983*

Registration and orientation.....	Thurs., June 9
Classes begin.....	Tues., June 13
Independence Day recess.....	Mon., July 4
Classes end.....	Fri., Aug. 5
Examination period.....	Mon.- Fri., Aug. 8-12

Fall Term, 1983*

Registration—	
First year evening students.....	Mon., Aug 15
First year day students.....	Fri., Aug. 19
All other students and graduate law students.....	Mon., Wed. and Thurs., Aug. 22, 24 and 25
Classes begin—	
First year evening students.....	Mon., Aug. 15
First year day students.....	Mon., Aug. 22
All other students.....	Mon., Aug. 29
Labor Day recess.....	Mon., Sept. 5
Registration for winter term, 1983.....	Thurs.- Mon., Nov. 17-21
Thanksgiving recess.....	Thurs.- Sun., Nov. 24-27
Classes end.....	Wed., Dec. 7
Review and reading period.....	Thurs.- Sun., Dec. 8-11
Examination period.....	Mon.- Fri., Dec. 12-23
Fall term ends.....	Thurs., Dec. 31
Holiday recess.....	Sat., Dec. 24, 1983 - Sun., Jan. 1, 1984

Winter Term, 1984*

Winter term begins.....	Sun., Jan. 1, 1984
Classes begin.....	Mon. Jan. 9
Spring recess.....	Sun.- Sun., March 4-11
Classes resume.....	Mon., March 12
Classes end.....	Sat., April 21
Review and reading period.....	Sun.- Sun., April 22-29
Examination period.....	Mon.- Fri., April 30- May 11
Grading, consultation and final faculty meetings.....	Sat.- Sun., May 12-27
Academic year ends.....	Sun., May 27
Law School commencement.....	Sun., June 17

* Tentative.

Foreword

History and Goals of the Law School

Wayne State University Law School has served as a source of lawyers for Michigan and the nation for more than fifty years. In 1927, a group of public-spirited lawyers led by Judge Allan Campbell, in cooperation with the Board of Education of the City of Detroit, established a new law school as part of the higher education system known as the Colleges of the City of Detroit. These colleges were subsequently renamed Wayne University and, in 1956, joined Michigan and Michigan State as one of the three major universities of this state as Wayne State University.

Dean Arthur Neef succeeded Judge Campbell as Dean in 1936, serving until 1967. He was succeeded in 1968 by Charles Joiner. Under Dean Joiner the School expanded its faculty and gained a national reputation for its urban programs. After his appointment to the Federal District bench, Dean Joiner was succeeded in 1975 by Donald Gordon. The current Dean, John C. Roberts, came to Wayne University in 1980. The School now comprises nearly 1,000 students and more than forty full-time faculty members.

The Law School pursues the two major goals of training and research. Its primary purpose is to train lawyers for a wide variety of roles in private law firms, corporations, public interest firms, prosecutor's and defender's offices, and in many law-related fields. Its rich and varied educational program is designed not just to teach the legal rules by which our business and personal affairs are governed in a complex society, but also to instill an appreciation of the larger role of the legal profession as a mold of society's values and institutions. In addition to basic instruction in all major fields of law, Wayne University offers many elective courses allowing students to explore new fields of knowledge, to engage in interdisciplinary study, and to thoroughly investigate areas of special interest. Its program also stresses writing experiences designed to develop skills of written self-expression, and oral advocacy training both in trial and appellate settings. In addition to the classroom component, Wayne State offers the opportunity to enrich legal education with real-life legal experience. The school's location in a major urban center provides ample opportunities for term-time internships with judges, prosecutor's and defender's offices, and public interest law offices, as well as with private law firms. Wayne University's clinical programs allow students to represent real clients as part of their training, and at the same time provide a vital service to the Detroit community.

The school's second major goal is scholarly research by its faculty. Teachers at Wayne University make significant contributions to our understanding of issues in environmental law, taxation, criminal procedure, constitutional law, urban law and many other fields. Their books and articles also contribute significantly to the depth and quality of classroom teaching. It is the interaction of these two activities which creates an especially stimulating environment for the law student.

The Law School faculty prides itself on its diversity. The forty-five men and women who make up the full-time faculty include lawyers with experience in local, state and federal government, others who have served as clerks for federal judges, a number who are experienced as private practitioners, and others who are well known public interest advocates. They combine excellent academic backgrounds with practical experience. The Wayne University faculty is committed to classroom teaching excellence, and also to advancing the state of professional knowledge through scholarship. The School's location also

permits the recruitment of excellent part-time faculty, including federal judges and practitioners whose professional perspective is particularly valuable in certain kinds of courses and seminars.

The Law School is a member of the Association of American Law Schools and is accredited by the Michigan State Board of Bar Examiners and by the American Bar Association.

Location

The University is particularly fortunate in being located in the Detroit Cultural Center which is in mid-town Detroit but removed from the main downtown area. Within a few blocks of the Law School buildings are the Detroit Public Library; The Detroit Institute of Arts; the Detroit Historical Museum; and the Detroit Science Center. The Law School is located on the main campus in close proximity to the major University library complex and other University facilities. To the south lies a major medical center including the Wayne State University School of Medicine.

The Law School provides up-to-date quarters for classrooms, faculty and student offices, and the law library. One building has five large classrooms with terraced seats designed to provide comfortable auditory-visual relationships among students and between students and the instructor. The floors are carpeted for comfort and excellent acoustics. The second building in the complex contains the Arthur Neef Law Library, seminar rooms, a large practice court room, faculty and administrative offices, and a faculty library and lounge. The offices of student organizations, including the *Wayne Law Review*, Moot Court Board, Free Legal Aid Clinic, and the Student Board of Governors, and the student lounge. A third building, opened in 1971, houses the offices of the Clinical Advocacy Program and the legal research and writing instructors, some faculty offices, the Law School Placement Service, and additional study carrels.

Arthur Neef Law Library

Wayne State's law library is the second largest in the state of Michigan, comprising some 240,000 volumes. It is a major resource for faculty and students of the Law School, as well as for members of local and state bar, representatives of state and federal agencies, alumni and students of other law schools. About 1,200 periodicals and over 700 looseleaf services are received regularly. In 1971 Wayne State University Law Library was designated as an official depository for U.S. Government documents.

In addition to a virtually complete collection of all Michigan legal materials, the Library contains the reported cases of the highest courts and most of the lower court reports of all of the states and territories of the United States 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, microforms, and tapes, 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.

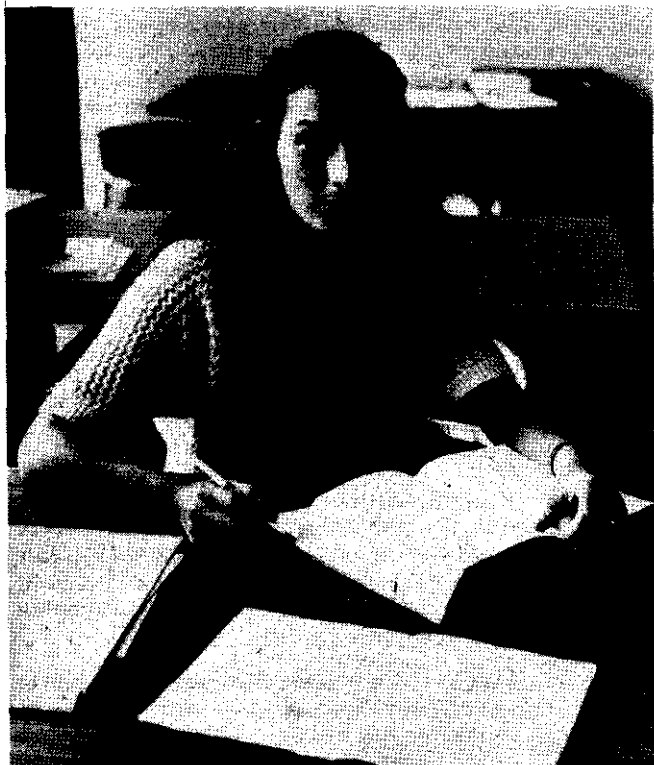
The students and faculty at the Law School also have available the use of LEXIS computerized research for instructional purposes.

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 generous 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.

Placement

Wayne State University Law School graduates are in considerable demand by law firms, government agencies, corporations and law-related employers in Michigan and throughout the country. A substantial percentage of each year's class remains in the state, joining not only the larger law firms in Detroit, Grand Rapids and other cities but also smaller law offices around Michigan. Many students begin their careers in clerkship positions with state and federal judges, and increasing numbers of students are finding employment in the large midwestern urban centers outside Michigan and in Washington D.C. Graduates of Wayne State Law School are members of the United States House of Representatives (Representatives John Conyers and Dennis Hertel), the Michigan House of Representatives, and the Detroit City Council. Several graduates of the School serve as United States District Judges and many occupy judicial positions in Michigan and other state court systems. An alumnus is a member of the Federal Trade Commission and another serves as Attorney General of Illinois. Likewise, graduates of the School are chief executive officers of major corporations both in Michigan and elsewhere.

Under the direction of an assistant dean, the Law School provides a full-time placement service to arrange law and law-related positions for students, graduates and alumni. Lawyers, governmental agencies, corporations, law firms, and others are provided with office facilities in which to conduct interviews with applicants. The Placement Office receives strong support from the Law School Alumni Association as well as individual alumni.



ACADEMIC PROGRAMS AND DEGREES

The Law School offers academic programs leading to the degrees of Juris Doctor (J.D.) and Master of Laws (LL.M.). The J.D. is a graduate degree requiring a baccalaureate degree as a prerequisite. The LL.M. is a graduate degree offered by the Law School in the fields of taxation and labor law which requires as prerequisite the J.D. or its equivalent.

The Law School also 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.

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 86 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. (Students entering the Law School prior to the summer 1981 term must complete 80 credits.)

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 twenty-two credits each year, and a student in the five-year program attends classes four nights a week completing about seventeen 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 interchangeably.

The first-year curriculum for J.D. candidates includes the required basic courses of contracts, criminal law, civil procedure, property and torts. The first-year student also takes a course in legal writing and research, concentrating on legal writing and advocacy in practice appellate proceedings. This culminates in an oral argument judged by the legal writing instructor and practicing attorneys. After completing the first-year required courses, the student can choose from among 80 elective courses and seminars, including interdisciplinary courses covering a broad range of subjects. Students with special interests may concentrate their study in such areas as commercial law, taxation, labor law, criminal law, international and comparative law, and urban law. Students may also participate in clinical programs for academic credit. For a detailed description of course and seminar offerings, see pages 208-215.

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 curriculum 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 twenty-four credits in course work, and 2) satisfactory completion of a substantial legal essay under the direction of an instructor, for which the student receives an additional two credits. 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 the applicant's background in the field in which he or she wishes to work. Applications 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 and college they attended send complete transcripts of their records.

Combined Law and Graduate Studies

Law School students may pursue a master's degree in a field other than law concurrently with their study of law. Upon completion of their first year of law study, students 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 of four years of study at the University.

Students who are interested in taking graduate level courses related to their legal training in other schools and colleges of the University may receive credit toward their law degree for the satisfactory completion of such work. The student must first secure the approval of the Dean to register for such courses. For detailed information on graduate courses and programs in the University, consult the other school and college sections of this bulletin.

Graduate Program in Law and History

A formalized joint degree program in the study of law and history leads to the simultaneous receipt of a J.D. from the Law School and an M.A. from the Department of History of the College of Liberal Arts. As a part of the M.A. program, students may focus on chronological history, including Roman, Byzantine, Western European, English, and American backgrounds on the law. They may also take courses in labor, business, or urban history or history as it relates to the lawyer's role in public policy making in domestic and international affairs. Students who have successfully completed their first year at the Law School may apply to the History Department for admission and to the Law School for permission to pursue this combined degree program. A brochure more fully describing the program is available from the Law School Admissions Office and the History Department.

SPECIAL PROGRAMS

Legal Research and Writing

The first-year Legal Research and Writing course, taught in small classes by seven full-time instructors, begins with a non-graded orientation program lasting five full days for day students and eight evenings for evening students. During orientation, the instructors describe the Law School curriculum, the case method of teaching, the

organization of the federal and state court systems, and the way a legal case progresses through a court system. The instructors next use the case method to help students to analyze five actual appellate court cases. The students then practice their newly-developed case analysis skills by preparing and delivering an oral argument before a mock appellate court composed of their peers. Interspersed with the academic orientation activities are a variety of social events designed to acquaint the students with both their colleagues and the Law School faculty.

Following orientation, students meet with their legal research and writing instructors both in weekly class sessions lasting two hours and in frequent individual conferences. First term class time is devoted primarily to the teaching of writing, organization, and case analysis skills. Students learn to use library materials by researching a legal problem with a small group of students in eight sessions conducted by a teaching assistant. Because the legal research and writing program is founded on the philosophy that students should have several opportunities to practice each new skill prior to receiving a grade for their efforts, students complete a variety of nongraded research and writing exercises early in the term. They then draft a non-research legal memorandum, a research memorandum, and a trial brief.

In the second term, instructors teach oral and written appellate advocacy skills and students deliver two oral arguments, one before their classmates and another before a panel of practicing attorneys. In addition, relying on a comprehensive trial court record, students draft an appellate brief in compliance with the actual rules of the court hearing the case.

Clinical Advocacy and Workshop

In addition to traditional law courses, the Law School offers a wide variety of clinical and workshop courses designed to acclimate students to the intellectual challenges of law.

In the clinical offerings, students represent clients in a variety of civil and criminal matters in both state and federal courts and critically examine law practice in the classroom. Students participate in various aspects of civil and criminal practice — interviewing, counseling, investigation, case evaluation and analysis, legal research and writing, motion and pleading practice, discovery, court appearances and appellate practice. The civil program consists of three courses: Trial Advocacy/Evidence (JDC 970), Pretrial Litigation (JDC 965), and Civil Practice (JDC 950). Students may elect one, two or all three courses. Trial Advocacy/Evidence and Pretrial Litigation are simulation courses; Civil Practice is a 'live client' clinic in which students handle a variety of adversarial proceedings, including employment discrimination cases, disability review hearings and appeals, mental commitment proceedings, and occasionally law reform litigation. The Public Interest Litigation Clinic (JDC 841) offers students the opportunity to work on actual cases involving areas such as civil rights, prisoners' rights, consumer law and welfare law. The Criminal Advocacy Clinic (JDC 960) permits students to be directly involved in all aspects of criminal cases. The student-faculty ratios are sufficiently small to allow direct supervision of all student work in litigation clinics by professorial-rank faculty or staff attorneys.

For students who seek to learn litigation techniques in a simulation setting, many sections of Civil Trial Advocacy are offered. Small groups of students are given the opportunity to develop their trial skills under the supervision of full-time faculty members with substantial litigation experience and a part-time faculty consisting of outstanding members of the Detroit trial bar.

The gap between law school and practice must be bridged in areas of specialty which do not involve the courtroom. The Workshops in Commercial Law (JDC 985) and Estate Planning (JDC 980) provide students the opportunity to apply the learning acquired in the

classroom to simulated legal problems requiring planning, drafting of documents and negotiating.

Internships

Second and third-year students have the opportunity to clerk on a part-time basis for distinguished judges and in a variety of law practice settings in the Detroit area. In the past years, students have participated in this internship program for academic credit by serving as research clerks to justices of the Michigan Supreme Court, and judges of the United States Court of Appeals, United States District Courts, and both Wayne and Oakland County Circuit Courts. Students may also serve as research clerks in the City of Detroit Law Department, the Federal Defender's Office, the United States Attorney's Office, the Wayne County Prosecutor's Office, and the Women's Justice Center. With the approval of both the Dean and the faculty, students may also arrange for special public interest internship experience in Washington, D.C. and other cities. The internship programs provide a unique opportunity for students to gain practical experience while concurrently pursuing their classroom studies.

First Year Summer Program

This summer law program is designed to assist first-year students who are accepted for admission to the Law School for the fall term but who may benefit from the opportunity to spread the first academic year of law study over an entire calendar year. For those students whose LSAT score is below 500 or whose entrance factor is below 1100, participation in the summer program is mandatory.

Day students take two of the first-year required courses in the summer preceding the beginning of the regular academic year. For evening students, one course is offered. Since credit is given for the successful completion of these courses, the program permits a lighter course load in the regular academic year.

Enrollment is limited to forty students in the day program and forty students in the evening program. Although admittees with lower admission factors will be given preference for admission to this program, all who apply will be considered.

Supportive Services

The Supportive Services Program, under the direction of an assistant dean, offers tutoring, counseling and other academic assistance to both day and evening law students.

Tutorial assistance is available to any student experiencing academic difficulty. Upperclass law students and practicing attorneys act as tutors for small groups of students. Each group meets weekly to discuss the cases and concepts that have been covered in classes during the preceding week. While emphasis is placed on class preparation and case analysis, the tutors also assist students with problems in case briefing, effective note-taking, organizing course materials (outlining) and techniques of exam writing. Several practice exams are administered throughout the year in order to strengthen students' understanding of legal principles and acclimate students to the exam taking process.

The Supportive Services Program also offers videotaped lectures by nationally respected authorities in subject areas covered by the first-year courses. The lectures offer another perspective to assist students in organizing and understanding the course material.

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

Wayne State University does not discriminate on the basis of race, color, religion, national origin, handicap, marital status, age or sex in the hiring of applicants for employment, in the treatment of University personnel or in the admission of students.

Preparation for Law Study

The Law School has no requirements with respect to the content of pre-legal education, but its Admission Committee will take into account the nature of college work completed as well as the grades achieved. In general, an undergraduate liberal arts education is preferred to one which is narrowly specialized, but a professional or specialist degree does not preclude admission. A strong background in English is recommended, since proficiency with language, both written and spoken, is essential to both the study and practice of law.

The suggestions for pre-law preparation in the *Prelaw Handbook*, published by the Law School Admission Council, are valuable. This book contains material on the law, the legal profession and the study of law, together with individualized information on all ABA-approved American law schools. It may be ordered from the Law School Admission Services, Box 2000, Newtown, PA 18940, and is also available in most university bookstores and libraries.

Requirements for Admission

Admission to the Law School requires a bachelor's degree from an accredited college or university. Applicants must have or expect to receive the degree by the summer preceding admission to the Law School.

The Law School does not admit first-year classes for the January term.

The goals of the admission standards of the Law School are first, to assure that a substantial majority of the entering class is composed of persons who are the most highly qualified applicants, according to the best available measures of academic achievement and potential; second, to continue the Law School's commitment to a diverse student body which includes substantial representation of qualified minority persons and qualified persons from a disadvantaged background in each entering class; and third, to guarantee that all applicants admitted have indicated a capacity to do satisfactory work in the Law School.

In furtherance of these goals, 75 per cent of the entering class will be admitted strictly on the basis of superior undergraduate grade point average and LSAT score. In recent years, serious consideration for admission on the basis of these factors alone has required the equivalent of a 3.25 grade point average and an LSAT score of 600. A higher score can offset a lower grade point average and vice versa. The remaining 25 per cent will be admitted in accordance with the following discretionary criteria: 1. an applicant's academic achievement and

potential, as shown by his or her LSAT score and grade point average;

2. an applicant's minority status — black, Latin America or American Indian.

3. an applicant's demonstrated capacity to overcome a significant educational disability, such as attending for several years a *de jure* segregated school or a public high school in a low-income geographic area;

4. special features of an applicant's academic record that reduce the reliability of the grade point average as an index of academic achievement and promise, such as the age of undergraduate grades and any marked improvement in grades shown in the later years of college.

Any person admitted to the first-year class whose LSAT score is under 500 or whose undergraduate grade point average and score equals less than 1100 (using the formula $UGPA \times 200 + LSAT$) shall be required to enroll in and complete the First Year Summer Institute (including the writing of examinations) as a condition of eligibility to enroll in the fall semester and to continue as a law student.

Please note the following items when making application:

APPLICATION DEADLINE: All applications must be on file with the Law School on or before April 15. Applications received later than April 15 will be considered after applications timely received or may be refused. It is the applicant's responsibility to ascertain that all credentials are in. Notices of incomplete applications are not sent by the Law school.

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. Checks should be made payable to Wayne State University. Those drawn on Canadian and other foreign banks must carry the notation 'payable in U.S. funds, plus service charge.'

LAW SCHOOL ADMISSION TEST: Each applicant must take the Law School Admission Test (LSAT). LSAT scores are considered valid for four years. The tests are given by the Educational Testing Service five times each year in centers located throughout the United States, including Detroit, and in many foreign countries. It is recommended that the LSAT be taken by October or December prior to the year for which admission is sought, but in no event later than February. The LSDAS/LSAT Bulletin, containing registration forms, a sample test and other pertinent information about the LSAT, may be obtained at any university or law school or by writing to the Law School Admission Services, Box 2000, Newtown, PA 18940. The Law School does not mail the Bulletin.

PREPARATION FOR THE LSAT: A sample LSAT test, with study guide, is included in the Law School Admission Bulletin. The Law School Admission Council does not recommend any other materials for use in preparation for the LSAT.

REPEATING THE LSAT: The Law School averages scores when the LSAT is taken more than once if less than four years have elapsed since the first test. It should be noted that candidates who repeat the LSAT seldom raise scores more than 40-50 points.

TRANSCRIPTS: Each applicant who has attended undergraduate schools in the United States must register with the Law School Data Assembly Service (LSDAS). Registration forms are in the LSDAS/LSAT Bulletin. Transcripts should be sent, after registration, directly to the LSDAS, *not to the Law School*. However, transcripts covering work completed after LSDAS registration may be submitted to the Law School. Applicants who have completed undergraduate work in foreign institutions are not required to register with LSDAS.

RECOMMENDATIONS AND INTERVIEWS: The Law School does not require or encourage letters of recommendation. Except in unusual circumstances personal interviews are not encouraged.

PERSONAL STATEMENT: Although a personal statement is not required, applicants are invited to submit one. A statement should be written when there are unusual characteristics in an academic record or if any other aspect of an application needs explanation or amplification.

ADMISSION FACTOR: In determining admissions ratings, the Law School considers an applicant's LSAT score and grade point average to be of equal weight. The formula used is: $GPA \times 200 + LSAT$. Junior or community college grades are not used in determining the factor, nor are grades from graduate programs.

ADMISSIONS DECISIONS: The Admissions Committee is composed of five law professors, five students, the Associate Dean and the Director of Admissions. The Admissions Office evaluates individual applications, ranks them and makes admissions decisions in keeping with Law School policies. Applications of those who are not admitted by the Admissions Office are reviewed on the basis of discretionary criteria by the faculty members of the Committee.

RECONSIDERATION: An applicant may request reconsideration of an adverse admission decision. To do so, a letter stating the specific reasons why reconsideration is being sought should be sent to the Director of Admissions. Upon receipt of the request, the application will be reviewed by the faculty members of the Admissions Committee.

DEFERRED ADMISSIONS: The Law school does not have a deferred admissions policy. An admittee who withdraws from the class before registration must file a new application and fee for another year. All credentials are kept for four years, so it often is not necessary to re-register with the LSDAS.

EVENING CLASSES: First-year evening students may elect either a four-year program which requires, during the first-year, attending classes four evenings per week, or a five-year program, which requires attendance three evenings per week except during the second term when alternate weeks require attendance for two evenings.

REDUCED PROGRAM: The first-year course load is mandatory. Day students who have substantial child care responsibilities may be permitted to take a slightly reduced course load during the first-year. To be considered for admission on this basis an applicant must so indicate in a separate statement which provides detailed personal circumstances supporting the request.

ENTRANCE DATES: First-year students are admitted only to the fall term beginning in August. Attendance at the Orientation program, as well as early sessions of Legal Writing and Research (JDC 640), is mandatory. Classes for first-year day students begin on August 23, 1982; first-year evening students begin on August 16, 1982. The first-year summer program begins on June 14, 1982.

TRANSFER STUDENTS: Students from other accredited law schools, who have completed at least a full year of law study, but not more than two, may apply for admission with advanced standing. Law school grades, along with the candidate's general application information and original admissions credentials, are evaluated. For serious consideration, a transfer applicant should have a law school average of at least a 'B'.

Applicants must submit official undergraduate transcripts, LSAT scores and official law school grades, together with a certification of good standing from the Dean of the law school previously attended. Registration with LSDAS is not required. No action will be taken on transfer applications until the final grades in all law classes are received.

FOREIGN LAW SCHOOL STUDENTS: Admission with advanced standing may be granted to a graduate of or a student attending a foreign law school. Such an applicant must submit an LSAT score. An evaluation of what credits, if any, may be transferred from the foreign institution may be made, but only after the completion of one year of course work at Wayne State Law School. However, the American Bar Association Standards and Rules of Procedure for Approval of Law Schools stipulates:

Advanced standing and credit allowed for foreign study shall not exceed one-third of the total required by the Standards for the first professional degree unless the foreign study is related chiefly to a system of law basically followed in the jurisdiction in which the admitting school is located; and in no event shall the maximum advanced standing and credit allowed exceed two-thirds of the total required by the Standards for the first professional degree.

GUESTS: Students from other accredited law schools are welcome to take one or two classes provided the Dean of the home school has given permission and the law school grade average is at least equal to a 'C'. A law student who wishes to take one or two full terms for the purpose of transferring credit must apply in the same manner as an Advanced Credit applicant, meeting the same law school average and submitting the same credentials.

STUDENT SERVICES

Health

Insurance covering short-term (22 days) hospitalization, emergency care and home care expenses is offered to Wayne State University students and their families through GM Underwriters, Inc. Information and applications for this policy will be available at registration time.

The University does not offer health care to its students. In case of illness on campus, students are advised to go to the Receiving Hospital Emergency Room located in the Medical Center.

Housing

On-Campus Housing: The University Housing Office manages several apartment buildings, some of which are exclusively for graduate and professional students, faculty and staff.

Faville Hall: A dormitory in which all apartments are double occupancy with roommates assigned. All units are completely furnished with the exception of linen. Graduate and professional students.

Helen Deroy Apartments: A modern high rise building offering furnished and unfurnished efficiency, one and two-bedroom apartments; a playground and child care center. There is a playground and child care center. Handicapped units are available. Graduate and professional students, faculty and staff.

Forest apartments: A modern building with furnished and unfurnished efficiency and one-bedroom apartments. Children are welcome and handicapped units are available.

Chatsworth Towers: An older, elegant building with unfurnished efficiency, one and two-bedroom apartments; apartments twenty-four hour switchboard service and a reception desk. No children. Professional students, faculty and staff.

Chatsworth Annex: Unfurnished two-bedroom apartments, some with large front porches. Children welcome.

Santa Fe and Sherbrooke Apartments : Old, well-maintained buildings with efficiency and one-bedroom unfurnished apartments. No children.

Helen Newberry Joy Residence: Double and single room dormitory. There is no food service, but kitchen facilities are available on every floor.

Although bus service is convenient and students may find that a car is not necessary, outdoor parking is available for a fee near all of these buildings. Pets are not allowed in any of the campus buildings. For an illustrated brochure, rental list and application, please call or write the Housing Office, 700 Merrick, Detroit 48202, (313) 577-2116.

Off-Campus Housing: The neighborhood offers a wide range of housing of all prices and degrees of comfort. The Law School Admissions Office maintains a file of available area housing and a list of students who are seeking roommates.

Transportation

A mini bus circles campus from the Medical Center to Henry Ford Hospital, going through the New Center District. Decals allowing Wayne State University students to ride free of charge are available at registration or at the Student Resource Center in the Student Center Building.

The Student Resource Center has Amtrak, Greyhound and SEMTA schedules. Four city bus routes (on Cass, Woodward and Anthony Wayne) go downtown and north of the campus and make connections with other lines.

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. 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 tuition if the applicant enrolls.

Tuition and Fees

The fees cited below are in effect as of the publication of this bulletin and are subject to change at any time without notice by action of the Board of Governors.

Resident \$40.00 plus \$95.00 per credit
Non-Resident \$40.00 plus \$200.00 per credit

NOTE: Full-time day students carry fourteen credits in the fall term and sixteen credits in the winter term; thereafter, they must average fourteen credits per term to reach the eighty-six credits required for graduation of all students entering in or after June, 1981.

Law students who elect courses in other Wayne State University colleges shall pay the appropriate fee as though all courses were part of their annual Law School program, with the exception of College of

Lifelong Learning (CLL) courses. Law students electing courses in CLL will be charged CLL fees in addition to their Law School fees.

Students must make a minimum deposit when they register each term, with the balance due in two approximately equal payments due at the end of the seventh and eleventh weeks 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/she must take to complete registration and/or of any liability incurred. The applicable Late Registration Fee will be assessed when the check is replaced with a valid payment.

MASTER CHARGE and VISA cards are accepted. For details, inquire at the Cashier's Office.

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 \$10.00 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/her withdrawal or of a reduction in program, he/she shall be entitled to a cancellation of the fees applicable to the portion of the program which has been dropped, as follows:

Withdrawal through the end
of the third week of classes 100 percent less \$30.00*
Withdrawal during the fourth
and fifth week of classes 60 percent
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 10.

* For students who have been required to pay the \$50.00 deposit, the amount of refund will be 100 percent less \$50.00.

Student Residency

The non-resident fee is assessed all students who have not maintained a legal domicile (see page 10) in the State of Michigan for at least six consecutive months immediately prior to the first day of classes of the term for which they register. Time spent in Michigan primarily as a student does not count toward these six months.

If students enroll in undergraduate school for more than eight credits, or graduate school for more than six credits, or in law school for more than eight credits in any one full-length term, it is normally presumed that their sojourn is for the purpose of attending school and not to establish domicile.

The age of majority is eighteen years. Minors do not have the capacity to establish their own domicile but derive it from their parents, or in certain cases, from a guardian.

An alien who has been lawfully admitted to the United States and who has obtained either an immigrant visa or refugee visa may acquire residency for the purpose of paying fees at Wayne State University under the same conditions as may a United States citizen who has come to Michigan from another state.

A detailed statement of the University residency policy may be obtained at the Registration Office, Room 156, Administrative Services Building.

Students who have been classified as non-resident must file written application for a change of classification in the Registration Office if they feel that the classification is in error. The application and all required supporting documents must be submitted before the last day of classes of the term for which they hope to be reclassified.

The University reserves the right to correct errors in the student's classification at any time.

ACADEMIC REGULATIONS

The faculty of the Law School has adopted certain academic regulations which cover degree requirements, examinations, and other academic matters. Compliance with these regulations is required of all law students. Copies of the academic regulations are available in the Law School Records Office.

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 the end of the first week of classes for the winter term. Students who anticipate graduating in December of an academic year must file an application for degree not later than the end of the first week of classes for the fall term.

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 two credits of essay during each term that he/she uses facilities or receives

advisory services until such time as the student: (a) completes the requirements for the degree; (b) declares him/herself 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 two credits for the essay. A mark of Z (Auditor) will be recorded on the student's master record for these additional elections.

Student Rights and Responsibilities

In August, 1977, the Board of Governors approved the Law School's Procedures and Guidelines for implementing Students' Rights and Responsibilities. Copies are available in the Law School library.

Release of Student Records

The University recognizes admissions and academic records of students as being privileged and has a policy designed to insure that this information is not improperly divulged without the consent of the student. Copies of the policy are available from the registrar. The University reserves the right to provide academic information to other schools and colleges when it is to be used for curriculum evaluation purposes. In such instances, the University requires assurance that the names of any students whose records are involved will be held in confidence.

Bar Examinations

Students who contemplate practicing law in states other than Michigan should consult Bar examiners of such states 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 examination upon graduation.

Applicants for the Michigan Bar examination must have their graduation certified by the Law School, must file the necessary application, and pay 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 Law Examiners. Currently, an applicant for the Michigan Bar must pass the multi-state or the entire examination. Information regarding the Michigan Bar examination can be obtained by writing the State Board of Law Examiners, 306 Townsend Street, Lansing MI 48933.

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 the law, its application, and the techniques of practice—in other words, to prepare a student for the practice of law.

FINANCIAL AID, SCHOLARSHIPS AND AWARDS

Financial Aid

The Law School's financial aid program is designed to assure that a student will not be denied a law school education because of insufficient family or personal resources. To the extent that funds are available, the School will seek to assist students to meet a standard law school budget. *Application for financial aid must be submitted anew each year.* Students who are dependent on parental support or independent of parental support may qualify for one or more of these types of aid:

Board of Governors Grants-in-Aid — This assistance covers tuition costs and is available to U.S. citizens or permanent U.S. residents and is extended solely on the basis of financial need.

National Direct Student Loan (NDSL) — Law students who are U.S. citizens or permanent U.S. residents may apply for the federally-sponsored National Direct Student Loan. Law students may borrow up to \$2500 per year with repayment at four per cent simple interest beginning six months after the student is no longer pursuing his/her education on at least a half-time basis. The maximum aggregate amount a graduate student may borrow, including all loans secured at the graduate level (masters, doctorate, law), is \$6,000. Students who demonstrate sufficient need may receive the NDSL Loan in addition to Law School tuition grants, Board of Governors grants-in-aid or college work-study.

College Work-Study — Law students who are United States citizens may be employed under the Federal College Work-Study Program. A variety of jobs are available through the University work-study placement program. These include jobs on the *Wayne Law Review*, Moot Court, and the Free Legal Aid Clinic. A law student in this program may earn up to \$3,540 per year depending upon the pay rate and number of hours worked. First-year law students are *not* eligible for work-study.

Students may apply for Board of Governors Grants-in-Aid, National Direct Student Loans and College Work-Study by filing a Financial Aid Form (FAF) which is available from the Law School Financial Aids Officer, Room 317, Law Library Building. The Deadline for filing the Form is April 15.

Guaranteed Student Loan Program (GSL) — These loans are made by participating lenders (banks, credit unions, savings and loan associations.). Residents of states other than Michigan should apply to a lender in their home state. *Applications must be obtained from the lender and the completed application submitted to the Law School Financial Aids Officer, Room 317, Law Library Building.*

State Direct Student Loan (SDSL) — The State Direct Student Loan program is available to students who have been unsuccessful in obtaining a Guaranteed Student Loan through a bank, credit union, or savings and loan association. Full-time students can borrow up to a maximum of \$5,000 each year. The maximum aggregate amount a graduate student may borrow, including all GSLs and/or SDSLs secured at the graduate level (masters, doctorate, law) is \$15,000. The applicant must be a resident of the State of Michigan. Residents of states other than Michigan should contact their State department of

Education. To apply for the State Direct Student Loan, the student should obtain the SDSL application form from the Law School Financial Aids Officer, Room 317, Law Library, and obtain a letter from a lender certifying an unsuccessful attempt to secure a Guaranteed Student Loan (GSL).

Special Loans and Grants

The Law school administers or cooperates to provide information on several special funds which provide grants or loans to law students.

Law Alumni Scholarship — The generous contributions of the alumni and friends of the Law School have provided funds which are used to support law students in financial need. A small portion of these contributions are used to provide stipends for the most superior members of the entering class pursuing full-time study and, beginning in 1982-83, the most superior members of the second-year class, based upon their first-year performance; recipients of these stipends are designated Law Alumni Scholars.

Stanley J. Antosz Fund — This fund provides tuition assistance to law students who have need and are employed while pursuing their education. The late Stanley J. Antosz was a factory worker interested in helping students who, by their own earnings, contribute toward the costs of their education.

DeWaters Student Aid Fund — Scholarships are available through this fund for law students who are legal residents of Genesee County. Applications may be obtained by writing to the DeWaters Student Aid Fund, Flint Board of education, Sarvis Center, Lower Level, 1231 East Kearsley Street, Flint, Michigan 48503.

Alexander Freeman Fund — Funds for this scholarship were provided by the late Mr. and Mrs. Alexander Freeman in recognition of the important contributions made in the field on international and comparative law by Dr. Alwyn Freeman. A scholarship is awarded annually to a student who is particularly interested in these areas of law and expects to pursue a career in them.

Rebecca Anne Gourwitz Scholarship Fund — Funds for this award are provided by Howard J. Gourwitz, Class of 1972, in honor of his daughter. The fund provides financial assistance to a student who has need and is suffering from a physical handicap or impairment.

Law School Minority Students Fund — Funds are provided by the Howard 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 School Emergency Loans — Several special funds provide short-term interest free loans to law students. These funds include the Leon Cousens Memorial Loan Fund, the Emergency Loan Fund, the Alexander Freeman Loan Fund, the George N. and Phyllis J. Parris Loan Fund, the Joseph S. Radom Loan Fund, the Michael L. Stacey Loan Fund, the William D. Traitel Loan Fund, and the Ernest C. Wunch Student Loan Fund. Applications for loans from any of these funds are available from the Law School Assistant Dean for Student Affairs.

In addition to the Law School emergency loans, short-term loans are also available to Wayne State University students generally. Information about these short-term loans is available from the Law School financial Aids Officer, Room 317, Law Library.

Law students are not under any obligation to repay scholarship or grant awards. It is expected, though, that after graduation, students will contribute to the Alumni Fund to insure the continuation and success of the Law School financial aid program.

Scholarships, Awards and Prizes

The following scholarships, awards and prizes are determined on the basis of service to the Law School, written essay competitions, or academic achievement. In some cases, financial need is also considered. Recipients of these scholarships, awards and prizes are recognized at the Law School Honors Convocation held each fall.

Ida and Benjamin Alpert Foundation Scholarships — Residents of Michigan who have applied to and have been accepted for admission to a law school, or are presently enrolled in law school, may apply for these scholarships. Winners are determined by an essay competition. Application should be made before June 15, through Judge Frank S. Szymanski, 1211 City-County Building, Detroit, Michigan 48226. Applications are also available at the Wayne State University Law School, Office of the Assistant Dean for Student Affairs.

American Jurisprudence Awards — A specially bound volume of American Jurisprudence 2d is awarded by the Lawyers Co-operative Publishing Company and Bancroft-Whitney Company to the students who earn the highest grades in certain courses.

Harold M. August Scholarship — This scholarship established by Irving A. August, Class of 1955, in memory of his father, is awarded to a student who has shown superior academic achievement and need.

Bodman-Longley Scholarship — This scholarship established by the firm of Bodman, Longley and Dahling is awarded to the outstanding minority student entering the senior year who needs financial assistance.

Certificate Awards — Certificates are awarded to student leaders in the Free Legal Aid Clinic, *Wayne Law Review*, Moot Court and Student Board of Governors for their service to the Law School. Certificates are also awarded to the participants of the annual Client Counseling Competition.

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 superior academic achievement.

Frances and Charles Driker Scholarships — In recognition of the many contributions of Eugene Driker, Class of 1961, to the Law School, this fund was established in honor of Mr. Driker's parents by Michael Timmis, Class of 1965. The scholarships are given each year to one day and one evening Wayne State University Law School student with the highest academic average at the end of the first year of law studies.

Evans and Luptak Business Planning Award — This award is made annually to the student who receives the highest grade in the course, A Transactional Approach to Business Planning (JDC 725).

Gladys Freid Scholarship — This scholarship established by Bernard Freid, Esq., in honor of his mother, is awarded to a first-year student showing academic promise and need.

John E. Glavin Award — This award, established in honor of Professor Emeritus John E. Glavin, is given to a student for scholarly achievement in the area of administrative law.

Marshall D. Goldberg Memorial Award — An annual award, established by the law firm of Schluskel, Lifton, Simon, Rands, Kaufman and Lesinski, in memory of Marshall D. Goldberg, of the Class of 1975, is given to the best oralist in the Moot Court Law Day Competition.

Jason L. Honigman Scholarship — This scholarship established by Jason L. Honigman, Esq., is awarded to the Editor-in-Chief of the *Wayne Law Review*.

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.

Harry B. Keidan Memorial Award — An annual award in memory of Harry B. Keidan is given for academic achievement and need.

Law Alumni Association Awards — The Alumni Association of the Law School makes annual awards to students who excel in the Junior Appellate Moot Court Competition.

Arthur F. Lederle Scholarships — These scholarships, which were established by family and friends of the late United States District Court Judge Arthur F. Lederle, are awarded to first-year students with need and potential for superior academic work.

Carl Levin Award — This award, established by Mr. and Mrs. Robert L. Adams in honor of Senator Carl Levin, is given to the student with the best seminar paper in an area of Senator Levin's interest — urban and community development.

Judge John R. Murphy Award — This award is made by the faculty in memory of Judge Murphy, who was an alumnus (Class of 1962) and adjunct professor at the Law School and the youngest jurist ever to serve as Executive Judge of Detroit Recorder's Court. The award is made annually to the student whose seminar paper exhibits the highest quality of legal scholarship.

Edward H. Rakow Memorial Award — This award, established in memory of Edward H. Rakow by the Federal Bar Foundation of Detroit to promote interest in securities regulation, is made each year to a junior or senior law student on the basis of scholarly achievement in corporate and securities subjects.

Renfrew Prize in Legal History — Established by James Renfrew, Class of 1950, this annual award is made to the student who writes the best original essay of publishable quality dealing with American, English or Continental legal history.

Scholarships Key Certificates — Gold, silver and bronze key certificates are awarded to students who have demonstrated outstanding academic achievement.

Samuel Schwartz Memorial Prize — Established in memory of Samuel Schwartz, Class of 1952, this award is given to the student who writes the outstanding contribution to the *Wayne Law Review* in the field of labor relations law.

Boaz Siegel Award — This fund was established by Boaz Siegel, Class of 1941 and Professor Emeritus of the Law School. An annual award is made to the law student who writes the best publishable article in the field of pension, health and welfare, or labor law.

Max Smitt Scholarship — Established by Helene Warren in memory of her brother, Max Smitt, a distinguished member of the State Bar, the scholarship is awarded based on academic performance and need.

Southfield Bar Association — This annual award established by the Southfield Bar Association is given to a student on the basis of academic achievement.

State Bar of Michigan — Negligence Law Section Prize — An annual prize is awarded for the best paper in the area of tort law.

Touche Ross and Company Award — Annual award is made to the student writing the best seminar paper in the area of taxation.

William D. Traitel Scholarships — These scholarships are designated by Mr. Traitel for students who have demonstrated superior academic achievement.

United States Law Week Award — A year's complimentary subscription to *Law Week* is given to the graduating law student who has made the most satisfactory scholastic progress in his or her final year.

Ferne Walter Scholarships — Memorial scholarships in honor of Ferne Walter, Class of 1941, are awarded on the basis of high academic achievement and need.



LAW SCHOOL ACTIVITIES

Placement Service

The Law school offers a full-time placement service under the direction of an assistant dean and an experienced staff. To students, graduating seniors and alumni the Office provides assistance including opportunities for part-time clerkships, full-time summer positions, judicial internships, as well as traditional jobs after graduation with law firms, corporations, government agencies and other law-related employment. Assistance in resume preparation, interview techniques and career counseling is also available.

The Office has excellent facilities for on-campus recruiting teams and conducts an annual publicity campaign directed at major law employers nationwide. Wayne Law School is a member of the National Association for Law Placement (NALP), an organization which provides professional placement assistance and statistical information to all accredited law schools.

Students are encouraged to visit the Placement Office to discuss their individual employment problems with the Director.

STUDENT ACTIVITIES

Black Legal Alliance

The Wolverine Law student Association, the first minority student organization at the Law School, was created in the mid-1960s. In 1973, the Association changed its name to the Black Legal Alliance and presently directs its activities toward influencing American law schools to be more responsive to the particular needs and interests of the Black law student. Other objectives of the Black Legal Alliance are to articulate and promote the professional needs and goals of Black American law students, encourage professional competence, and instill in the Black attorney and law student a greater awareness of and commitment to the needs of the Black community.

Client Counseling

The Client Counseling Competition, 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 and national competitions. Law School certificates of merit are also awarded to student participants.

Delta Theta Phi Law Fraternity

Delta Theta Phi is the oldest of the professional law fraternities. The c. B. Warren Senate offers its members excellent contacts with members of the bench and bar, as well as strong support from the alumni and national fraternity. The fraternity sponsors both social activities and meetings featuring speakers on legal and professional topics. Scholarship funds are available to members who qualify.

Free Legal Aid Clinic

The Free Legal Aid Clinic (F.L.A.C.) is a student-operated corporation designed with the dual purpose of serving the Detroit community and providing practical legal experience to Wayne State University law students. This popular clinic allows law students who have completed their first year to obtain well rounded experience in handling both civil and criminal cases under the guidance of a supervising attorney. The student attorney handles the entire case including all court appearances and interactions with both the client and opposing counsel. An alumnus of the Clinic is well versed in the operation of the judicial system, especially Wayne County Court, one of the busiest courts in the nation. Additionally, the Clinic offers a variety of seminars geared to the desires and needs of the practitioner. Dedicated Clinic members will be afforded the opportunity to serve on the Clinic's Board of Directors, the student group solely responsible for the efficient operation of the law office. The Clinic is available to students year round on either credit or work study programs.

InCAR

InCAR, International Committee Against Racism, is dedicated to promoting multi-racial unity among working people and students and to a militant approach in the fight against racism. An InCAR chapter has existed at Wayne State University since the fall of 1973 and at the Law School since the fall of 1977.

International Law Society

The International Law Society is designed to promote greater understanding of the role of international law in business and international relations. The organization has invited scholars to speak on current events in international law and business. These lectures will be compiled and published as a collection of essays.

La Ley Law Student Association

This association was founded in 1971 by Latin law students who were deeply concerned about the under-representation of Latinos in the Law School as well as in the legal profession. Its activities have stressed interaction between the law student and the Latin American Bar Association, research on the legal problems of the Latino community, and the recruitment and graduation of Latino law students.

Moot Court Program

The Moot Court Program introduces students to the art of appellate advocacy. Under the direction of the Moot Court Board, teams of two second-year students prepare legal briefs and present oral arguments addressing issues of current legal significance in the context of hypothetical appellate litigation. Superior teams are selected to present arguments to a panel of distinguished judges during the Law School's annual Law Day celebration. The 1981 Law Day judges included Chief Justice Mary Coleman and Justice Charles Levin of the Michigan Supreme Court, Chief Judge Danhof of the Court of Appeals, Judge Justin Ravitz of the Detroit Recorder's Court and Neil Fink, a Detroit attorney.

Other participants are selected to represent the Law School in inter-scholastic competitions throughout the United States. The National Moot Court Team, composed of six seniors, represents the Law School in regional and national competitions. Recent national teams have brought the school much recognition. Both the 1979-80 and 1980-81 teams captured first place in the regional competition and went on to represent Wayne State in the nationals. The 1980-81 team advanced to the national quarter finals and finished eighth of

approximately 250 teams.

Besides the practical experience students gain by participation in Moot Court, the program also entitles them to numerous honors. 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.

National Lawyers Guild

This association is dedicated to the need for basic change in the structure of our political and economic system, with its primary aim directed toward bringing together all those who look upon the law as an instrument for the protection of people, rather than for their repression. The members share skills, research and experience by means of meetings, local and national projects, and workshops. The national convention of the organization, hosted by the Detroit area chapters, was held at Wayne State University in May of 1981.

Phi Alpha Delta Law Fraternity

Phi Alpha Delta, an international fraternity, is the largest legal fraternity in the United States. It provides an opportunity for students to meet and discuss legal topics with members who are practicing attorneys. In past years, the organization has sponsored a speakers program, inviting outside member-practitioners to speak at the School.

State Bar of Michigan Law Student Section

The State Bar of Michigan Law Student Section is open to all Michigan law students. The membership fee is \$6.00 annually or \$9.00 for a one and one-half year membership. Included with membership is a subscription to the State Bar Journal, the Law Student Section Newsletter, the Young Lawyers' Section Newsletter, the Annual State Bar Directory, membership in most other State Bar Sections, and the opportunity to attend programs and seminars sponsored by the Law Student Section. Three students from each of the five Michigan law schools are elected annually to serve on the Law Student Section Governing Council.

Student Board of Governors

The Student Board of Governors is composed of elected representatives from each division of the day and evening class plus an Executive Board elected by the student body as a whole. The Board works actively to serve the needs and protect the rights of the student body. The president of the Student Board acts as the liaison between students and the faculty and administration of both the Law School and the University.

The Student Board appoints student representatives to serve on faculty committees, conducts a faculty evaluation of every class each term, supervises publication of the Law School newspaper, *the Advocate*, holds a used book sale at the beginning of each term, organizes several student-faculty social activities throughout the school year, and provides inexpensive coffee for students in the Board office.

The Board Office is located in the basement of the Law Library building. Meetings are held every other week and students are encouraged to voice their opinions and suggestions, either in person or through their elected representatives.

Tau Epsilon Rho Law Fraternity

Tau Epsilon Rho is an international professional law fraternity with an open membership policy. The fraternity enhances the law student experience through social activities and provides valuable contacts with judges and practitioners through activities with the sponsoring graduate chapters. It also presents practice-oriented seminars and has a law clerk placement program. Special scholarships, grants and loans are available to members of this fraternity.

Wayne Environmental Law Society

The Wayne Environmental Law society affords law students an excellent opportunity to integrate their academic training with practical experience. Members have been active in Detroit's historic preservation efforts; have lobbied for acceptable Clean Air Act amendments; testified before legislative committees and assisted in drafting legislation for the protection of Michigan's forests and petroleum resources. The Society sponsors speakers and films, subscribes to various environmental publications, and offers students an opportunity to exchange ideas with other students, faculty, environmental groups and environmental professionals. This Society has been very successful in assisting active members in obtaining jobs in environmental law.

Wayne Law Review

The *Wayne Law Review* is the Law School's official scholarly journal and is one of the largest law reviews in the country, in both staff size and number of pages published. The *Review* publishes four issues annually: three regular issues contain articles on selected topics by leading jurists, professors, attorneys and law students; and an annual survey of Michigan law which reviews developments in selected areas of state law for the preceding year. The *Review's* primary purpose is to provide a quality publication for the legal community, and it has gained extensive recognition in recent years, particularly for its annual Survey issue. In addition, the *Review* offers students an excellent opportunity to perfect research, writing and technical skills and membership often leads to expanded employment opportunities covering a wide range of legal skills and interests.

The *Review* is operated exclusively by students, with minimal advice from the faculty law review committee. The *Review* staff is composed of a Senior Editorial Board and Senior Associate Editors all of whom have spent one year writing for the *Review*, and Junior Members in their second or third year of day school or third or fourth year of night school who have been chosen for membership on the basis of academic performance and writing ability.

Women's Law Caucus

The central concern of the Women's Law Caucus is with the rights and status of women in society and in the legal profession. The Caucus works with the Woman's Justice Center, the Women Lawyers Association of Michigan and other women's organizations to provide legal services and resources to the local community and the University. The organization has taken an active role in planning regional conferences on women and the law and is one of the sponsors of the National Conference to be held in Detroit in April of 1982.

Activities Related to the Law School

Institute of Continuing Legal Education: The Institute is an organization jointly sponsored by Wayne State University Law School, the University of Michigan Law School and the State Bar of Michigan. It provides continuing educational services to the Michigan bench and

bar. This institute, one of the most successful in the nation, administers a program designed to facilitate the transition from law school to active practice, to improve the general professional competence of Michigan practice, to improve the general professional competence of Michigan lawyers and to provide advanced specialty courses where needed.

Law Alumni Association: The Association is an independent organization made up of graduates of Wayne State University Law School. The alumni association is of great assistance in the areas of placement and development and the provision of continuing legal education to its membership through a series of seminars. The Association also sponsors receptions and other events during each school year designed to bring together alumni and faculty.

Committee of Visitors: This is a group of distinguished lawyers and judges who provide professional advice and assistance to the Dean on a continuing basis.

The Law School Fund: Wayne State University Law School conducts an annual fund raising campaign to solicit contributions from alumni, corporations and other organizations. The Fund provides direct student aid for scholarships and also assistance to student organizations where needed. In addition, it is a source of assistance to the library, the faculty, research activities and other Law School related programs.

The Wayne Lawyer: All alumni and current students receive copies of the *The Wayne Lawyer*, the official magazine of the Law School. Published twice each year, it provides current information as to Law School activities, alumni accomplishments, a regular message from the Dean and articles of lasting interest written by members of the faculty.



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 descriptions of courses is intended only to convey a general idea of the range of instruction offered by the Law School and is subject to change.

Juris Doctor Courses (JDC)

Required First Year Courses:

609. Introduction to Law. Cr. 3

Structure of legal system: international, federal, state and municipal; sources of law: treaty, custom, statute, judicial decision; legal process and legal reasoning; Constitutional considerations; jurisdiction of courts; hierarchy of courts; precedent and *stare decisis*; retroactivity; distinctions between civil and criminal law; methodology of legal research.

610. Civil Procedure. Cr. 3(6 req.)

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.

620. Contracts. Cr. 3(6 req.)

General principles of the law of contracts; definition of 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 considered from viewpoints of both common law and statute.

630. Criminal Law. Cr. 3

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.

640. Legal Writing and Research. Cr. 2(4 req.)

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.

650. Property. Cr. 2-4 (6 req.)

Basic course in real property, which will include selected materials from some of the following areas: historical introduction to real property; modern law of possessory estates, including non-freehold estates; landlord and tenant relationships; and the rights, duties and liabilities arising therefrom; concurrent estates; Statute of Uses; restraints upon the use of land; conveyancing and effects of the Recording Acts; land use planning and the current urban crisis.

660. Torts. Cr. 2-5(5 req.)

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

¹ See page 633 for interpretation of numbering system, signs and abbreviations.

reputation, to real or personal property, and to interference with business or family relations.

Required Upper Level Courses

670. Constitutional Law I. Cr. 3

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 umpiring the federal system.

680. Professional Responsibility and the Legal Profession. Cr. 2

Conflicts of interest; the attorney's standard of care, fiduciary duty, the organization of bar associations, the attorney's duty to the court and the community; 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.

Elective Courses

704. Administrative Law. Cr. 3 or 4

Prereq: JDC 670. Powers and procedures of administrative agencies in the United States; methods of review and jurisdiction of the courts over administrative action.

707. Admiralty Law. Cr. 2

Admiralty jurisdiction; personal injury and death; charter parties and bills of lading; collision and limitation of liability.

710. Agency and Partnership. Cr. 2

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.

713. American Legal History. Cr. 2

Interplay between the legal system and society at large; the American Revolution and the framing of the Constitution; the law's role in economic development; race relations; judicial activism vs. judicial restraint; development of civil liberties; legal status of women; violence and the law.

716. Antitrust. Cr. 2 or 4

Government control of trade practices and industrial market structures which inhibit the competitive process; 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.

719. Appellate Advocacy. Cr. 2

Prereq: JDC 610, 630, 640, 620. 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.

722. The Banking System and Commercial Law. Cr. 2

Prereq: JDC 737. The banking system as a focal point for advanced inquiry into select problems in commercial law.

725. A Transactional Approach to Business Planning. Cr. 4(8 req.)

Prereq: JDC 755 and 881. Credit only on completion of two terms. 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.

728. Business Planning and Taxation of Corporations and Shareholders. Cr. 4

Prereq: JDC 755 and 881. Advanced work in corporations and federal taxation in business transactions, 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.

734. Civil Trial Advocacy. Cr. 3

Prereq: JDC 782 or consent of instructor. Not open to students who have taken JDC 970. Theoretical and practical study: interviewing, investigation, argument, and examination of witnesses, developed through discussion, videotaped role-playing, and critique; each student tries two simulated cases.

737. Commercial Transactions. Cr. 4

Not open to students who have taken former B L 0667 or B L 0669. Legal concepts involved in modern commercial transactions under the Uniform Commercial Code; sale of, payment for, and financing of goods; statutory interpretation.

740. Comparative Law. Cr. 2

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.

743. Complex Commercial and Consumer Litigation. Cr. 2

Pretrial stages of the litigation process and assembly of proofs. Class action, trial strategy, Panel on Multi-District Litigation, and selected evidentiary problems.

746. Conflict of Laws. Cr. 3

Principles, rules and methods thought to underlie the resolution of multi-state problems. Jurisdiction and enforcement of judgments of other states.

749. Constitutional Law II. Cr. 4

Prereq: JDC 670. Individual rights under the Constitution of the United States. Freedom of speech, religious freedom and equal protection.

751. Constitutional Law and Minority Issues. Cr. 2

Prereq: JDC 749. Development of American law bearing on racial issues from the introduction of slavery to the present; effectiveness of courts and legal process in providing relief for victims of contemporary racial injustice. Status of blacks from slaves to citizens traced in court decisions, statutes, and writings.

752. Consumer Credit Regulation. Cr. 2

Federal and state laws and regulations which protect consumers; including interest rate regulation, time-price doctrine, Uniform Consumer Credit Code, Federal Truth-In-Lending Act, Fair Credit Billing Act, Equal Credit Opportunity Act, Fair Credit Reporting Act, Debt Collection Procedures Act, limitations on remedies of creditors after default, and consumer class action.

755. Corporations. Cr. 4

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.

758. Creditors' Rights. Cr. 3

Prereq: JDC 737 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.

761. Criminal Procedure I. Cr. 3

Prereq: JDC 670 recommended. Constitutional requirements for arrests, searches, seizures, electronic surveillance, and interrogations.

764. Criminal Procedure II. Cr. 3

Prereq: JDC 670 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.

769. Energy and Natural Resources Law Cr. 3

Basic common law and constitutional concepts governing energy production and use. Examination of National Environmental Policy Act and basic ideas of federal resource management, energy conservation, and major energy fuel cycles.

773. Environmental Law. Cr. 2-3

Environmental law in common-law, statutes, constitutional issues, administrative and international law. Coherent legal analysis of environmental problems and active legal remedies, rather than on specialized instruction in pollution controls and the like.

776. Equal Opportunity in Employment. Cr. 2

Prereq: consent of instructor. Federal constitutional and statutory guarantees of freedom from invidious discrimination in employment. Thirteenth and Fourteenth Amendments, Title VII of the Civil Rights Act of 1964, the Reconstruction Civil Rights Acts, 42 U.S.C. 1881, et seq., the Equal Pay Act of 1963, and the Age Discrimination in Employment Act of 1967.

778. Equitable Remedies. Cr. 3

Not open to students who have taken JDC 779 or JDC 866. Survey of the equitable remedies available for the vindication of substantive rights, which includes injunctive and restitutionary relief as well as the general treatment of equitable relief in contract, tort and criminal actions.

779. Equity. Cr. 2

Not open to students who have taken JDC 778. Equity as a specialized mode of dealing with diverse legal problems; availability and characteristics of equitable relief and the enforcement of judgments; alternatives to bankruptcy; bankruptcy proceedings.

782. Evidence. Cr. 2-4 (4 req.)

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.

785. Family Law. Cr. 2-3

Entry into marriage; legal treatment of couples in marital and non-marital relationships; divorce, including custody, alimony and property distribution, and the role of the attorney; procreation; illegitimacy; rights and responsibilities of children and parents with respect to each other and to the state; child abuse and neglect; and adoption. When offered for two credits, considerably less time is devoted to children's issues.

788. Federal Courts and the Federal System. Cr. 3

Prereq: JDC 620. 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.

790. Directed Study. Cr. 1-2

Prereq: prior written consent of professor directing the study and of the Assistant Dean. Subject matter and procedure are to be arranged prior to registration.

792. Federal, State and Local Tax Relationships. Cr. 2

Prereq: JDC 881. Federal, state and local tax relationships considering present methods of taxation and new measures to provide for adequate revenue.

793. Government Contracts. Cr. 2

Aspects of the law of government contracts: contract formation, contract performance, dispute procedures; use of government contracts to advance social and economic goals.

794. Immigration and Nationality Law. Cr. 2

Immigration, its history and development; entry into the United States, and alien status and adjustment to status; deportation and relief from deportation; exclusion and relief from exclusion; nationality and citizenship.

797. Insurance Law. Cr. 2

General principles, including indemnity, subrogation, reinsurance, insurable interest and classification of risks such as personal business and legal liability. Michigan insurance law and "no fault" legislation examined; contractual rights and liabilities of the insurer, insured, and third party beneficiaries.

800. International Aspects of U.S. Taxation. Cr. 2-3

Prereq: JDC 881. Not open to students who have taken JDC 863. 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 nonstatutory tax devices available for international operations.

802. International Business Transactions. Cr. 3

Practical legal problems connected with doing business abroad; counseling on foreign law.

803. 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.

806. International Protection of Human Rights. Cr. 2

The main international and regional legal instruments and procedures for the protection of human rights.

809. Juvenile Courts. Cr. 2

Prereq: JDC 761. Substantive law of delinquency, incorrigibility, dependency, and neglect; procedures utilized in the juvenile courts.

812. Labor Relations and the Law. Cr. 2-4(4 req.)

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.

815. Land Use. Cr. 2-3

Prereq: JDC 650. 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; relocation.

818. Law and Economics. Cr. 2

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.

819. Law of Elections and Political Organization. Cr. 2

Not open to students who have taken JDS 807. Laws and constitutional regulations governing voting, the nomination and election of public officials, initiative and referendum process, campaign contributions, fair election practices, political parties.

824. Legal Accounting. Cr. 2

May not be taken for credit by those having an undergraduate major in accounting or substantial graduate work in accounting. Basic principles of accounting with special reference to situations encountered by practicing lawyers; income measurement and related financial statement analysis.

827. 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.

830. Jurisprudence. Cr. 2

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.

836. Legal Process. Cr. 3

Not open to students who have taken JDS 815. 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.

839. Legislation. Cr. 3

The legislative process and its use as an instrument of 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.

842. Local Government Law. Cr. 2

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. Exploration of possible reform by means of metropolitan government or federal assistance. The lawyer's role in formulating governmental policy in major urban complexes.

845. Mass Media Law. Cr. 2

Prereq: JDC 749 recommended. Legal and constitutional issues applicable to the press and broadcast media, including: problems of newsgathering; First Amendment and the regulation of obscenity; the problem of national security information; licensing of broadcasters; public access to the air waves, fairness doctrine, equal time, and control of program content.

848. Organizing, Financing and Advising Small Business. Cr. 2

Prereq: JDC 755, 881. Not open to students who have taken JDC 725 or JDC 728. Small business start-up problems (organizational forms, timing, financing, taxes, insurance), growth problems, employee benefits, selected estate planning problems (liquidity, continuation of the business on death), dissolution, resolution of disputes between

owners.

851. Patents, Trademarks, and Copyrights. Cr. 2

Substantive patent, trademark, copyright, trade secret and misappropriation law. The central dilemma underlying the creation of property in intangibles. Technical background not required.

854. Problems in the Taxation of Corporations and Shareholders. Cr. 2-3

Prereq: JDC 881. Federal income taxation of corporations and their shareholders; problems relating to the formation, operation, reorganization, and liquidation of the corporation. Problems between shareholders and their closely-held corporation. Analysis and resolution of corporate tax issues.

857. Products Liability. Cr. 2

Problems arising out of defective products. Warranty actions, strict liability in tort, damages, problem of proof, other topics.

858. Public Interest Litigation. Cr. 3

Litigation skills and academic issues relating to public interest law suits; simulated law suit involving pleadings, motions and briefs, and argument in hearings.

860. Real Estate Financing. Cr. 2-3

Methods of financing the acquisition and improvement of residential and commercial real estate through the use of private sources of funds.

863. Regulated Industry. Cr. 2

Key concepts under regulations of public utilities, financial institutions, business of insurance and communications, including relation of federal-state regulatory authority, anti-trust and regulation, various theories of economic consequences of regulation.

866. Restitution. Cr. 2

Not open to students who have taken JDC 778. 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.

868. Advanced Sales Law. Cr. 2-3

Advanced study in sales areas beyond first-year contracts course.

869. Securities Regulation. Cr. 2

Prereq: JDC 728. Analysis of current problems in federal and state regulation of transactions in securities.

872. Sex-Based Discrimination. Cr. 2

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; and women in labor unions.

875. Sports Law. Cr. 2

Selected topics, such as antitrust, contract and tort aspects of sports activities, particularly team sports.

878. Tax Aspects of Real Estate Transactions. Cr. 2

Prereq: JDC 881. 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.

881. Taxation. Cr. 2-4

Interrelation between income tax policy and basic governmental and social institutions. 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 their solution. Underlying problems of policy which have led to the tax law of today and which may be expected to require change in the tax law of tomorrow.

884. Trusts and Decedents' Estates. Cr. 4

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.

886. Welfare Law. Cr. 3

Prereq: JDC 670. General welfare policy; consideration of Aid to Families with Dependent Children (AFDC) Program and other welfare programs; available judicial and administrative remedies in welfare cases.

887. Water Law. Cr. 2

Categories of water bodies 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.

891. White Collar Crime. Cr. 2

Prereq: JDC 761. In-depth examination of the grand jury process. Examination of the following issues: parallel administrative and criminal proceedings, representation of multiple defendants, lawyer-client privilege, the work product doctrine, and the standards for conviction for white collar crimes.

904. City of Detroit Corporation Counsel Externship. Cr. 1

Prereq: consent of adviser; second or third year student. Clinical program under the supervision of Corporation Counsel, Detroit, to provide research assistance and trial and appellate aid to members of the Corporation Counsel's staff. Approximately 8-10 hours per week in fall or winter terms.

906. Federal Defender Internship. Cr. 1

Prereq: consent of the assistant dean. Open only to second- and third-year students, who may not elect any other clinical internship in same term. Student is assigned to staff attorney in Federal Defender's Office; extensive research and brief writing in criminal cases at both trial and appellate levels. Fall and winter terms: 8-10 hours per week required; summer term, 16-20 hours per week required.

908. Judicial Internship. Cr. 1

Prereq: consent of adviser; second or third year student. 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 the work when the judge certifies adequate completion of the internship.

912. Internship: Prosecutor. Cr. 1

Prereq: consent of adviser; second or third year student. May not elect any other clinical or internship program in same term. Each student is assigned to an attorney on the appellate staff of the Wayne County Prosecutor, doing extensive research and brief writing. One- to two-week orientation period; student is taken through steps in processing actual cases. Credit is awarded when the supervising attorney certifies adequate completion of the internship.

914. Internship: Small Business Administration. Cr. 1

Prereq: consent of adviser; second or third year student. Student may not elect any other clinical or internship program in the same semester. Student works under the supervision of the District Counsel of the

Small Business Administration, doing research and brief writing for civil litigation involving UCC problems, bankruptcies and foreclosures. Approximately 8-10 hours per week during fall or winter terms; 16-20 hours per week in summer term.

916. Internship: United States Attorney. Cr. 1

Prereq: consent of adviser; second or third year student. May not elect any other clinical program or internship in same term. Work with a staff attorney; legal research and drafting of legal documents in a wide variety of civil and criminal cases, at both trial and appellate levels. Credit is awarded when the staff attorney certifies adequate completion of the internship.

930. Free Legal Aid Clinic. Cr. 1-2(2 req.)

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.

935. Law Review. Cr. 1-2

Open only to Law Review members.

940. Moot Court. Cr. 1-2

Open only to members of the Moot Court Board. Members conduct, under general faculty supervision, the program in the preparation of briefs and the hearings on oral arguments.

950. Clinical Advocacy: Civil Practice. Cr. 3

Prereq: JDC 734 and 782 or 970; consent of instructor. Supervised case-handling responsibilities. Students represent clients in a variety of civil litigation matters, such as employment discrimination cases, Social Security disability hearings, and commitment proceedings under the Mental Health Code. Civil liberties and law reform litigation may be undertaken. Class meetings are conducted as "law firm" conferences to discuss pending litigation problems and strategy. Students must devote 15-20 hours per week to their cases.

960. Clinical Advocacy: Criminal Defense Techniques. Cr. 7

Prereq: JDC 761, 782, 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.

965. Pretrial Litigation. Cr. 4

Simulation course in interviewing, counseling, drafting, discovery, motion practice and negotiation; the elements of good lawyering and attorney's appropriate role in attorney-client relationship.

970. Trial Advocacy: Evidence. Cr. 4

Not open to students who have taken JDC 734. Trial skills developed by clinical method of lecture, demonstration, student performance. Topics include direct and cross-examination, examination of experts, foundations, motions in limine and trial motions, opening statement, closing argument, jury selection and voir dire, jury instructions. Federal law of evidence is taught by same method to develop mastery of Federal Rules of Evidence.

981. Personal Estate Planning through Estates and Trusts II. Cr. 2

Prereq: JDC 881 and 791. Not open to students who have taken JDC 980 or LLM 866. Special problems such as valuation, drafting. State and federal transfer taxation and federal income tax treatment of fiduciaries and beneficiaries.

985. Problems in Commercial Law. Cr. 4

Prereq: JDC 737; 755, 881 recommended. Advanced study of commercial law in a problem setting; policy, theory and application of the statute.

Juris Doctor Seminar (JDS)

710. Advanced Topics in the Legal Regulation of Competition. Cr. 3

Prereq: JDC 716 or JDC 851 or JDC 863. Each student prepares an in-depth paper relating to subject matter covered by courses JDC 716, JDC 851, and JDC 863. Class discussions of papers.

713. Advertising and the Law. Cr. 3

Role of advertising in our society and the appropriate governmental response. Constraints placed on government regulation of advertising both by the first amendment and the perceived necessity of advertising to our economic system. Relevant considerations in choosing the most desirable modes of regulation.

714. African Customary Law. Cr. 3

Structure of traditional African political and judicial institutions; nature of African customary law and procedures for its application; concepts in substantive law and customary law; comparative analysis of concepts and procedures in African customary law and in Anglo-American jurisprudence.

715. Current Issues in American Indian Law. Cr. 3

Rights of Indian tribes under treaty and federal statute; conflicts arising from state regulation. Emphasis on Indian legal issues in the Great Lakes region.

716. American Legal History. Cr. 3

Prereq: consent of instructor. Selected problems.

718. Advanced Appellate Advocacy in Constitutional Criminal Practice. Cr. 3

Prereq: JDC 761; JDC 764 recommended. Development of brief writing and oral argument techniques in the context of current issues in constitutional criminal procedure. Each student works on an appellate brief and makes an oral argument. Workshop on complicated criminal procedure problem; development of writing skills.

722. Civil Rights Litigation. Cr. 3

Prereq: JDC 670; coreq: JDC 749. Constitutional challenges to racism and sexism; school desegregation litigation; discrimination in employment and Title VII litigation. Emphasis on "second generation" problems, such as facially neutral employment practices with discriminatory effect, and affirmative hiring remedies implicating the rights of white male workers.

728. Commercial Transactions Under the Uniform Commercial Code. Cr. 3

Prereq: JDC 737. Special problems in commercial transactions.

732. Comparative Consumer Protection. Cr. 3

Legal protection of the consumer under European civil law and Anglo-American law.

735. Law and Computer Technology. Cr. 3

Problems in the law of torts, evidence, contracts and copyright through use of computers; computerized data banks and individual privacy; regulation of computerized communication systems. Boolean logic and legal reasoning.

737. Contemporary Legal Theory. Cr. 3

Prereq: JDC 830 or introductory work in philosophy or jurisprudence. Recent contributions to *natural law* jurisprudential theories, focusing primarily on the work of Ronald Dworkin and Lon Fuller; evaluation of their work in light of criteria for legal theories developed during the course.

740. Copyright Law and Intellectual Property. Cr. 3

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.

743. The Corporation and Public Policy. Cr. 3

Significant impacts of large American corporations on 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.

747. Corruption and Organized Criminal Activity. Cr. 3

Organized criminal activity and corruption, including practices involving the police and all three branches of government.

750. Criminal and Quasi-Criminal Law and Procedure. Cr. 3

Substantive and procedural issues in criminal prosecutions, civil commitments, deportations, forfeitures, expulsions, and license deprivations.

753. Criminal Practice. Cr. 3

Prereq: JDC 761, JDC 782, and JDC 630. Criminal practice issues in the context of hypothetical cases; criminal law, constitutional criminal procedure, and evidence; emphasis on scientific evidence.

756. Current Constitutional Problems. Cr. 3

Prereq: JDC 670 or equiv. Each student produces a substantial paper dealing with a constitutional problem of special interest. Discussion of papers and constitutional issues of current significance.

759. Current Issues in Tax Policy. Cr. 3

Prereq: JDC 881. Current tax policy issues confronting Congress: policy issues in estate and gift taxation; policy issues in federal income taxation; changing nature of the federal tax structure and the potential adoption of new federal taxes.

762. Current Problems in Taxation. Cr. 3

Examination of proposals for change in income tax laws in areas of: (1) tax implications of marriage and family responsibilities; (2) interpretation of personal and corporate taxes; (3) tax shelter abuses; (4) fringe benefits to employees; (5) child care allowances; (6) simplification of the tax laws.

765. Discipline of Children: The Legal Foundation. Cr. 3

Rights of parents to discipline young children; distinctions among types of discipline; exercise of authority by parents; legal sanctions imposed on a parent for failure to discipline his/her child.

766. Discrimination in Employment and Housing. Cr. 3

Prereq: JDC 670. Not open to students who have taken JDS 722 or JDS 768. Constitutional and statutory remedies against discrimination in employment and housing based on race, sex, age and religion, including state and local constitutional and legislative remedies; procedure of Michigan Civil Rights Commission.

767. Economic Analysis of Labor Law Issues. Cr. 3

Prereq: JDC 812. The first portion of the seminar will examine the basics of economic analysis of law, from various perspectives; the economics models developed will then be applied to substantive questions in labor law.

768. Employment Discrimination. Cr. 3

Litigation of employment discrimination cases under various causes of action, including the Thirteenth and Fourteenth Amendments; Reconstruction Civil Rights Act; Title VII of the Civil Rights Act of 1964, as amended; Equal Pay Act of 1963; Age Discrimination Act of 1967; Michigan Fair Employment Practices Act; and Michigan Common Law. Procedural and substantive areas of employment discrimination; litigation tactics.

771. Environment and Land Use. Cr. 3

Basic problems posed by the interrelated fields of environmental law and land use: ecology and economics, energy and transportation, water and air pollution, open space, public participation, litigation's role. The ability of the law to deal with the major problem areas and their causes and cures and practical research into Michigan practices.

774. Federal Taxation and the Family. Cr. 3

Prereq: JDC 881; recommended prereq. or coreq: JDC 785, JDC 791. Policy-oriented study of the Internal Revenue Code and its effect on familial relationships; implications of the tax law for the family; consonance with other legislation (as in welfare or education).

775. Federal Tax Policy. Cr. 3

Prereq: JDC 881. 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.

782. Health Law. Cr. 3

The health system and its interaction with the law. The effect of legal doctrine and public policy development relating to regulation of health providers: licensure and facility approvals, private and government health insurance, role of consumers, emerging concepts of health planning, national health insurance.

785. Housing for the Poor. Cr. 3

The landlord-tenant aspect of the problem of adequate housing for the poor.

788. The Individual and the Union. Cr. 3

Prereq. or coreq: JDC 812. Legal bases for judicial intervention in internal union affairs, compulsory unionism, the right to admission and fair representation, the civil liberties of members, disciplinary proceedings, financial administration, election of officers, trusteeships, racketeering and subversive infiltration, and political activities.

791. International and Comparative Criminal Law. Cr. 3

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 (jurisdiction over crime, extradition, the prosecution of war criminals, proposals for an international criminal court).

797. Labor Arbitration. Cr. 3

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.

798. Theory of the Labor Contract in Public and Private Employment. Cr. 3

Prereq. or coreq: JDC 812. Interaction of the labor contract with general private and public law; comparison with general contract theory. Emphasis on dispute adjudication, fair representation and labor relations statutes.

800. Labor Law. Cr. 3

Prereq. or coreq: JDC 812. 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).

801. Labor Law and the Professional, Technical, and Cultural Worker. Cr. 3

Prereq: JDC 812. Legal problems of trade unionism for workers whose work is primarily cerebral rather than manual; developments

and prospects in private and public sectors; problems associated with worker's control and job enrichment.

803. Law and Bioethics. Cr. 3

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 background for effecting a compromise between the need to protect personal freedom and society's use of science to manipulate behavior.

804. Law and Economics. Cr. 3

No specific background in economics required. Recent developments in the application of legal analysis to legal doctrine.

807. The Law of Elections and Political Organization. Cr. 3

Not open to students who have taken JDC 819. Laws and constitutional regulations governing voting, the nomination and election of public officials, initiative and referendum process, campaign contributions, fair election practices, political parties.

810. Legal Control of Water Resources. Cr. 3

Selected legal problems of water scarcity and quality. Legal doctrine and policy analysis.

813. Legal History. Cr. 3

Selected cases in legal history.

815. Legal Process. Cr. 3

Not open to students who have taken JDC 836. 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.

819. Legislative Drafting. Cr. 3

No credit after JDC 839. Legislative drafting techniques, including limitations on legislation, legislative interpretation and procedures, and lobbying. Students draft an original bill with a section-by-section analysis and write a detailed paper in support of the bill.

825. Medical-Legal Problems. Cr. 3

Current problems in medical malpractice law (arbitration and insurance); issues arising from recent advances in biomedical technology (amniocentesis, fetal experimentation, and bio-hazards).

828. Multi-Party Litigation. Cr. 3

Prereq: JDC 610. 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.

829. Police Discretion, Its Exercise and Control: A Comparative Approach. Cr. 3

Study of the limitations upon police conduct as well as the means, legal and otherwise, of regulating official discretion. Although the focus is on the police, discretion in other areas of criminal justice, such as prosecutorial decision-making, or judicial sentencing, will be explored.

830. The Prison System. Cr. 3

In-depth study of the prison system, its origins, utility, and role in the American criminal justice system.

831. Psychiatry and the Law. Cr. 3

Open only to third year law students and psychiatric residents. Enrollment subject to approval. Insights of psychiatry relevant to the law and the practicing lawyer. Dynamics of behavior; theory and technique of interviewing; forensic psychiatry issues: mental

hospitalization; personal injury, contractual and testamentary capacity, criminal law and family law. Patients at Lafayette Clinic are presented and discussed.

834. Public Employment Labor Relations. Cr. 3
Prereq. or coreq: JDC 812. 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.

837. Public Interest Environmental Law Seminar. Cr. 3
Prereq: consent of instructor. Environmental law controversies from Michigan and elsewhere in the United States, each involving a novel legal doctrine, administrative procedure, or litigation strategy. Analytical, creative, and presentational skills emphasized; class presentation and written analysis.

840. Public Interest Litigation. Cr. 3
Consideration, in a seminar setting, of the traditional legal process in the accommodation of modern "public interest" litigation.

841. Public Interest Litigation Clinical Seminar. Cr. 3
Prereq: JDC 670 and consent of instructor; JDC 749 recommended. Students have responsibility, jointly with faculty co-counsel, for handling a limited number of public interest cases, including class actions and appeals, in such areas as welfare entitlements, prisoner's rights, consumer law, criminal due process rights, police practices, mental health law, employment discrimination, students' rights and individual liberties. Substantial legal writing in the form of briefs and pre-brief memoranda for assigned cases will be required.

843. Real Estate Development. Cr. 3
All aspects of land development law, both public and private, aspects of taxation, financing, zoning and planning, identification of participants and their legal and economic problems.

847. Real Estate Transactions. Cr. 3
Prereq: JDC 650 and JDC 881. 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.

850. Scientific Experimentation on Humans. Cr. 3
Topics such as the difference between therapeutic intervention and experimentation; ways in which medical experimentation can and should be limited (legally and otherwise). Conventional topics such as hospital consents also considered.

853. Securities Regulation. Cr. 3
Prereq: JDC 755, JDC 869. Current problems in federal and state regulation of transactions in securities.

856. Selected Problems in Family Law. Cr. 3
Dynamic principles of child development, custody, neglect, and abuse; clinical experience at Children's Hospital; divorce, emotional impact on the attorney-counselor, counseling the client.

858. Statistics and the Law. Cr. 3
No technical background in mathematics or statistics required. Introduction to the basic concepts used by statisticians and the application of their techniques in a variety of legal settings, such as jury selection, antitrust litigation, and regulatory enforcement in various civil rights areas.

860. Tort Principles and the Problems of Modern Society. Cr. 3
Prereq: consent of instructor. Tort law and police misconduct cases. Litigation techniques as well as other means of influencing government/police rule making. Historical and community problems associated with the abuse of police powers in a major urban

community; litigation and law used to promote desirable social change.

866. Transnational Environmental Problems. Cr. 3
Prereq: JDC 733 or JDC 803 recommended. Response of the legal system to transnational environmental hazards caused by air and water pollution and the use of nuclear power.

870. Urban Housing and Community Development. Cr. 3
Legal, social, and economic aspects of urban housing and community development, including local, state and national programs and policies.

Master of Laws (LLM)

Courses Leading to the Master of Laws Degree

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 advisers. Permission may also be secured to take for credit related graduate level courses in economics, business administration and similar areas.

TAX LAW MAJORS who have not had a reasonably current income tax course in their undergraduate law work may be required to take JDC 881 prior to entering the graduate tax courses. They may earn partial credit for this course.

LABOR LAW MAJORS who have not had a basic labor law course in their undergraduate law program will normally be allowed to take LLM 818 before undertaking other graduate labor law courses.

810. Arbitration of Labor Disputes. Cr. 2
Prereq: consent of adviser. Study of labor arbitration, including grievance and interest arbitrations. Practice, policy questions and the impact of statutes.

814. The Collective Bargaining Agreement. Cr. 2-4(4 req.)
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.

816. Labor Law Aspects of ERISA. Cr. 2
Prereq: a basic labor law course. Employment Retirement Insurance Security Act. Labor law aspects of pension plans.

818. Labor Relations Law. Cr. 2
A basic course in labor relations for graduate students who have not had a reasonably current course of this kind in their undergraduate law studies.

822. Practices and Procedures Before the National Labor Relations Board. Cr. 2
The representational and unfair labor practice areas.

826. Special Problems Under the Taft-Hartley Act. Cr. 2
Aspects of the Taft-Hartley Act of current concern in labor law.

830. Unemployment Compensation Law. Cr. 2
Prereq: consent of adviser. Unemployment compensation law and practice, based on the Michigan statute, including federal relationships and a comparison with other state statutes.

834. Wage and Hour Laws. Cr. 2
State and federal wage and hour laws, including administration of the statutes and their interrelationship.

838. Workmen's Compensation Law. Cr. 2-4(4 req.)

Prereq: consent of adviser. Study of workmen's compensation law and practice, based on the Michigan statute, including a comparison with other state statutes.

850. Advanced Problems in Federal Income Taxation of Corporations and Shareholders. Cr. 2-4(4 req.)

Prereq: JDC 854 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.

854. Executive Compensation Plans. Cr. 2

Prereq: JDC 881. Problems in the tax principles applicable to the treatment of qualified and non-qualified deferred compensation arrangements (including retirement and salary continuation plans) and executive compensation arrangements (including stock option, restricted property and bonus plans); emphasis on pension and profit-sharing plans for corporate employees; ERISA problems.

858. Federal Income Taxation of Partnerships and Subchapter S Corporations. Cr. 2

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.

862. Federal Tax Practice. Cr. 2

Prereq: consent of adviser. Procedure, both administrative and judicial, involved in the conduct of federal tax controversies.

866. Income Taxation and Trusts. Cr. 2

Prereq: consent of adviser. Rules of federal income taxation applicable to trusts and estates. Selected estate tax problems under existing tax treatment with a view to considering possible changes in this area of the tax law.

870. State and Local Taxes. Cr. 2-4(4 req.)

Prereq: consent of adviser. The basic tax laws of state and local government, particularly property and excise taxes.

872. Tax Aspects of Corporate Reorganization. Cr. 2

Prereq: JDC 881 Tax problems arising out of corporate reorganization.

874. Tax Fraud. Cr. 2

Prereq: JDC 881. Federal, civil and criminal remedies for fraudulent tax evasion.

876. Tax Problems of Corporate Distributions and Liquidations. Cr. 2

Prereq: JDC 881 and JDC 854. Corporate distribution and liquidation problems not covered in other tax law courses.

878. Taxation of Non-Profit Associations. Cr. 2

Prereq: JDC 881. Tax problems arising from activities of non-profit associations of a type usually subject to taxation.

890. Directed Study in Law. Cr. 1-3

Prereq: consent of adviser.

899. Master's Essay Direction. Cr. 2

Prereq: consent of adviser.

FACULTY

Administration

Dean: John C. Roberts

Associate Dean: Arthur J. Lombard

Assistant Dean: Sharon M. Brown

Director, Graduate Program: Donald H. Gordon

Assistant Dean and Director of Placement Office:

Russell M. Paquette

Assistant Dean and Director of Supportive Services:

Elizabeth J. Walker

Director of Admissions: Mary Mahr

College Recorder: Elizabeth Van Goethem

Director, Law Library: Georgia A. Clark

Financial Aids Officer: Barbara M. Jones

Director, Legal Writing Program: Cheryl K. Scott

Business Manager: Randall J. Wilger

Professors

Robert H. Abrams, Martin J. Adelman, †Richard W. Bartke, Paul D. Borman, William Burnham, Kenneth R. Callahan, Robert S. Childs (Emeritus), John F. Dolan, Janet M. Friedman, John E. Glavin (Emeritus), Robert J. Glennon, Jr., 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, Harold S. Marchant (Emeritus), Michael J. McIntyre, John E. Mogk, Zygmunt J. B. Plaier, John C. Roberts, Alan S. Schenk, Stephen H. Schulman, Robert A. Sedler, Boaz Siegel (Emeritus), Ralph Slovenko, Francis M. Ssekandi, Richard Strichartz, Norbert D. West (Emeritus), Edward M. Wise

Associate Professors

Beth Ann Eisler, Janet E. Findlater, Steven L. Harris, David Loeffler, Joel Resnick, Timothy J. Wilton

Assistant Professors

Jennifer K. Bankier, William Burnham, Barbara Shaw Harvey, Steven L. Novinson, Margo K. Rogers, Vincent A. Wellman

Visiting Professors

Jay E. Brant, Sara W. Salter, Robert H. Skilton

Instructors

Mary M. Bolda, Deborah L. Brouwer, Barbara J. Bruno, Diana V. Pratt, Cheryl K. Scott, Katherine E. Ward, Bonna S. Weinstein

Clinical Attorneys

Martin A. Geer, Frederick L. Miller

Adjunct Faculty

The Honorable Victor J. Baum, Ernie L. Brooks, Jerome H. Brooks, Denis W. Budds, F. Philip Colista, John J. Collins, Janet C. Cooper, Maura D. Corrigan, William H. Dance, David M. Davis, J. Bruce Donaldson, Emmett E. Eagan, John H. Eggertsen, James T. Ellis, Joseph Galvin, The Honorable Horace W. Gilmore, Bernard Gottfried, J. Douglas Hand, William O. Hockhammer, George Hogg, Jr., Wolfgang Hoppe, William S. Hurst, John E. Jacobs, Bruce T. Leitman, Clunet R. Lewis, George Mager, Michele C. Mayes, Jeffrey

† Deceased.

H. Miro, Loren Opper, Joseph M. Polito, James K. Robinson, Erwin A. Rubenstein, John R. Runyan, Douglas A. Sargent, Robert V. Seymour, Joel M. Shere, John W. Simpson, Lawrence K. Snider, Theodore F. Spearman, Peter Sugar, Richard T. Tarnas, Stevan Uzelac, Allan R. Waterstone, Arthur A. Weiss, Roger G. Will

Law School Directory

Admissions

J.D. Program.....	231 Law Library; 577-3937
LL.M. Program.....	395 Law Library; 577-3955
Cashier's Office	158 Administrative Services Bldg.; 577-3650
Financial Aids.....	317 Law Library; 577-5142
Handicapped Student Services	450 Mackenzie Hall; 577-3362
Housing Office	700 Merrick; 577-2116
International Student Services.....	470 Mackenzie Hall; 577-3422
Military and Veterans Affairs	5743 Woodward; 577-3374
Records and Registration, Law School.....	311 Law Library; 577-3931
Residency	165 Administrative Services Bldg.; 577-3550
Supportive Services	195 Law School Annex; 577-3993

Letters should be addressed to the appropriate department and building at Wayne State University, Detroit Michigan 48202. The telephone area code is 313.

College of Liberal Arts

INTERIM DEAN: WALLACE T. WILLIAMS

Foreword

The College of Liberal Arts of Wayne State University offers students a number of 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 easily in the many cultural and social activities of the city. This opportunity for student participation in the vast technical, social and artistic milieu that characterizes the modern world adds operational dimension to the basic structure of their education.

The College of Liberal Arts interacts with all elements of the University community. 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; 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. 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's degree is designed to lead to a broadening of intellectual horizons. The Liberal Arts College presents the various areas of learning common to all human activity and gives students freedom to select among diverse courses and programs as they mature intellectually. The College undertakes to nurture intellectual growth by awakening in students an awareness of the need to relate readily to others and to communicate with them, both in writing and in speaking, in language that is cogent, precise, and colorful; by stimulating students to think and read critically; by providing the tools of research so that they may continue to learn, using the best sources, throughout life; by fostering in students a love of learning to enrich and deepen career and family life; by developing in students the necessary independence, resourcefulness, and judgment in early studies so that advanced courses leading toward a career may be selected with confidence. The student should be educated in breadth, be prepared to handle the changing circumstances of the future, and be imbued with the realization that education is never really concluded despite the completion of advanced training in a specialized field.

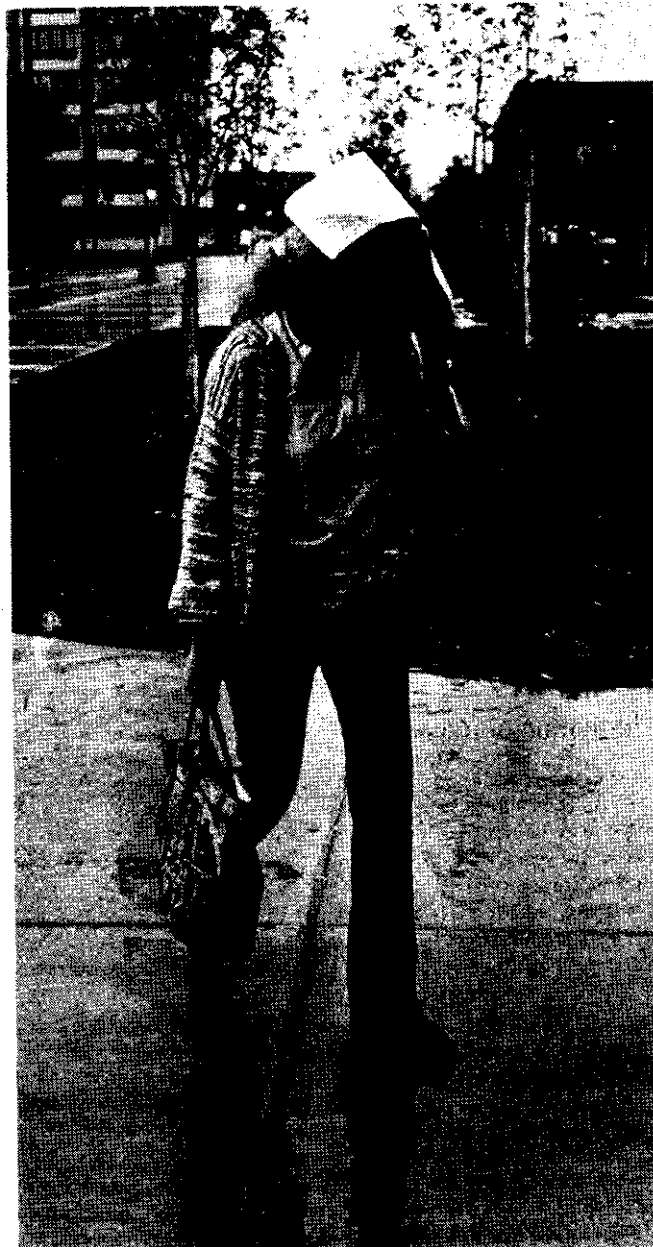
The College of Liberal Arts offers an extensive curriculum in the many areas of subject matter usually available only in a large university. For the student whose academic interests extend over several departments, the College curriculum has the necessary flexibility to meet individual needs. Structural combinations, for example, those between psychology and sociology, biology and psychology, economics and mathematics, as well as others, are available to students, as are interdisciplinary programs such as American Studies, Urban Studies and others. The Honors Program, available to selected superior students in the College, also emphasizes this interdisciplinary approach.

Since many students graduating from college today will enter fields which will be constantly undergoing radical changes, a major goal of the liberal arts program must be to stimulate in each student a resourceful understanding of change, in addition to 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 as well. Classes range in size from large lectures to discussion groups, which afford students 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 not only a quality undergraduate program but, in addition, 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.

Attendance

Regularity in attendance and performance is necessary for success in college work. Each instructor at the beginning of the course will announce attendance requirements.

Normal Program Load

The requirements for graduation are based upon an average program of fifteen credits per semester for eight semesters, 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.

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 chairperson. Five years after the end of a course, grade books may be returned to the instructor or destroyed by the department.

Scholastic Aptitude/American College Test Requirement

In order to better 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)* or the *American College Test (ACT)*. If the student has not taken the SAT or the ACT prior to admission, one of these tests must be taken during the first semester in which the student is registered.

Study Abroad

For more than a quarter of a century, the University has provided its students with the opportunity to study abroad for a year in order to fully experience the cultural, academic, and social 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. Four semesters of college German or the equivalent with an average of B or better 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 401 or 471 Manoogian, or phone 577-4611 or 577-4605.

The Wayne at Gordes Program offers up to twelve credits in advanced French, which may be earned during an eight-week summer session in the Renaissance village of Gordes in the south of France. French 310 or its equivalent is the prerequisite. Interested students should contact Professor Donald Spinelli at 367 Manoogian, or telephone 577-3020. Wayne in Italy is a summer program for beginners in Italian as well as for advanced students. Eight credits may be earned during a six week session in Bologna, Italy. Interested students should contact Professor Andrea di Tommaso, 415 Manoogian, or telephone 577-3219.

Since 1980 Wayne has had an exchange agreement with the Jagiellonian University in Krakow, Poland. Up to nine students are selected for a six week summer program; students may earn six to eight credits in Polish language and culture courses. Students selected to participate in this exchange program are responsible only for their travel costs; all tuition costs and room and board are covered by the exchange agreement. Interested students should contact the Department of Slavic Languages and Literature, 451 Manoogian, 577-3024.

Honors

The Honors Program of the College of Liberal Arts is designed to benefit superior students whose intellectual achievements and curiosity warrant special attention. Freshmen, sophomore and lower division transfer students admitted into the Honors Program have available to them honors sections and honors courses offered by departments throughout the College. Lower division honors students, in consultation with a faculty honors adviser, will pursue a course of studies leading to graduation with College Honors which will include the core curriculum of the Honors Program. For further information concerning the core curriculum see page 326. Graduation with College Honors requires that the student satisfactorily complete both the core curriculum of the Honors Program and a departmental honors program. Admission into a departmental honors program is at the discretion of each department, but is possible during a student's junior and senior year or after the completion of sixty credits. While the departmental honors programs vary from department to department, all include independent research, a senior honors essay and one interdisciplinary seminar offered by the Honors Program. A student who satisfactorily completes a departmental honors program graduates with honors in that department.

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 on the second floor of Mackenzie Hall. For information on courses see page 326.

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 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.

Graduation With Distinction

A candidate eligible for the bachelor's degree may receive a special 'distinction' citation placed on the diploma under the following circumstances:

The designations of 'distinction,' 'high distinction,' and 'highest distinction' will be conferred upon graduating students who fall within approximately the upper 20%, 10%, and 5% of the senior class, respectively. For graduating seniors who have completed 100 or more credits at Wayne State University, the honor points used to identify the lower limits for each designation will be based upon the honor points attained by seniors at these percentile levels during the preceding academic year. For students who have taken 60 to 99 credits at Wayne State University, the lower honor point limits will be set at 0.12, 0.08, and 0.05 honor points higher for 'distinction,' 'high distinction,' and 'highest distinction.'

Dean's List

The Dean's List of academically superior students is compiled each fall and winter term based on the following criteria: 3.6 honor points for students registered for full-time programs of twelve credits or more; 4.0 honor points for students registered for between six and eleven credits. Students who receive marks of 'I' (incomplete) or 'W' (withdrawal) are not eligible. (For explanation of these marks, see page xx.)

Probation

Low Honor Point: If a student's work averages below 2.0 the student will be placed on probation. If a serious honor point deficiency is incurred, the student may be required to obtain permission from the Office of the Dean before registering. Such permission will be granted only after an interview during which the student is able to give some assurance that the previous causes of failure will not be operative on the proposed program.

Non-Progression: Students whose records reveal an excessive number of 'Withdrawal' and 'Incomplete' marks and who, as a result, make little or no progress towards earning a degree, will be placed on probation. Such students may be required to confer with an academic adviser in the Liberal Arts Advising Office in order to reregister. Students on probation are encouraged to utilize the various support

services of the University.

Restriction: While on probation, a student may not represent the College in student activities.

Removal of Probation: Probation will be removed at the end of any term in which the student achieves an over-all average of 'C' or better for all degree work taken in the College or earned as cognate credit.

Exclusion

Low Honor Point: A student on probation who incurs a serious deficiency or fails to raise an honor point average within a reasonable length of time, 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.

Non-Progression: After having conferred with the Advising Office, non-progressing students who continue to fail to make progress towards a degree may be excluded from the College.

Readmission: 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 the 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, on discovering such an instance, may 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 office.

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 confer with advisers on all questions concerning degree requirements, academic regulations, course elections, and programs of study. It is of primary importance that students talk with an adviser when they are having difficulties in their academic work. A student is not assigned to a specific adviser but may choose either to see a specific adviser or any adviser who is available. Freshman and sophomore students in some of the special curricula are required to consult departmental advisers or advisers in other colleges. The current *Schedule of Classes* contains a roster of advisers.

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.

Application For Degree

See General University Information, page 8.

Degrees Granted

The College of Liberal Arts grants the following undergraduate degrees:

Bachelor of Arts
Bachelor of Fine Arts
Bachelor of Music
Bachelor of Public Affairs
Bachelor of Science
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 Medical Dietetics
Bachelor of Science in Physics

BACHELOR'S DEGREE REQUIREMENTS

General Requirements

Credits

A candidate for a Bachelor of Arts, Bachelor of Science, or any special degree must complete at least 120 credits. Certain curricula may require variation above this minimum. (See 'Degree Credit' and 'Restrictions on Credit', below.)

University Requirement in American Government

See General University Information, page 13.

Honor Point Average

All students are required to maintain an over-all honor point average of C (2.0) for all degree work elected. See 'Honor Point Average' in the General University Information section of this Bulletin, page 16.

Advanced Courses

At least fifteen credits in courses numbered 300 or above must be earned. **Combined Degrees:** Courses taken in the first year of professional school may be applied toward the required fifteen credits in advanced courses.

Residence

To qualify for a baccalaureate degree in the College of Liberal Arts a minimum of thirty credits must be earned in the College. The last thirty 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 may not be counted as residence credit but such credit, if earned during a semester in which the student is registered, will not be considered an interruption of residence.

In special circumstances, senior residence may be interrupted with the approval of the student's major department and the Educational Adjustment Committee; however, unless the candidate has more than the minimum thirty credits of residence in the College of Liberal Arts, no such exceptions are permitted.

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.

Proficiency in Composition

The College expects students to be able to communicate in writing at a level appropriate for college course work. All students are placed in the freshman composition sequence (English 101 or 102) on the basis of a Wayne State University examination in writing.

The English Proficiency Examination in Composition exists to insure that all students reach the required level of competence. Students are notified of this requirement upon completion of forty 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 student who fails the English Proficiency Examination must register for the Writing Workshop, English 108, in which instruction in writing is provided. When the English Proficiency Examination is passed, the College is notified that the student has met this graduation requirement. Students who have received an A in the basic Wayne State University composition course and in another Wayne State English class may apply to be exempted from taking the English Proficiency Examination. Students taking the English Proficiency Examination must apply to Testing and Evaluation, University Counseling Services; the fee is \$7.00.

Degree Credit

A candidate for a Bachelor of Arts, Bachelor of Science, or any special degree must complete at least 120 degree credits. 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', below.)

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 90 credits in the College of Liberal Arts, all college requirements, and make reasonable progress toward completing a major in addition to completing 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 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 who has earned a degree from the College of Liberal Arts may be ranked as an undergraduate by declaring a new major and indicating a desire to earn a second undergraduate degree. Other Wayne State

University graduates must transfer to the College of 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 thirty 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.*

Concurrent Degrees

A student who has satisfied all the requirements for two different major programs leading to degrees offered by the College and who has accumulated 150 or more degree credits may apply for both degrees simultaneously. However, students intending to earn concurrent degrees are required to obtain permission from the Office of the Dean prior to the accumulation of 120 degree credits. Another, and more usual, procedure for students satisfying the requirements of two different major programs is to declare a double major and graduate with one degree, in which case as little as 120 degree credits may be required. (See Double Major, page 224.)

Restrictions on Credit

The College imposes the following restrictions on credit:

Maximum Credits in One Subject: A student may not count as credit toward a degree more than forty-six 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 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, a department may require refresher work or demonstration of preparation for advanced courses in the department.

Restrictions on Transfer Credit — Two-Year Colleges: No more than sixty-four semester credits may be transferred from two-year colleges; moreover, once sixty-four semester credits have been earned toward a degree, credit will not be granted for work taken at a two-year college.

—Weekend College (College of Lifelong Learning): No more than sixteen credits, which may include six credits of Independent Study, may be transferred from Weekend College. Courses transferred will not count towards fulfilling group or major requirements.

—Labor School: A maximum of ten hours of elective credit may be granted students from the Labor School who have been certified as having completed the Labor School curriculum, have a letter of recommendation from the Director, and have earned sixty credits with an honor point average of at least 2.0.

Restricted Courses: Degree credit is not given for elections in restricted courses which exceed the approved limit specified below.

— Professional Courses

A maximum of sixteen credits may be elected as cognate credit by any student from courses offered for degree credit by the several professional schools and colleges within the University. Eight of these credits may be elected with the approval of a Liberal Arts adviser prior to the election of a major, and eight additional credits may be chosen with the approval of the major department. Where Liberal Arts advisers have approved fewer than eight credits, the major department may approve credit up to the sixteen 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:

<i>Areas</i>	<i>maximum degree credit</i>
Dance (approved courses).....	16
Family and Consumer Resources.....	16
Hygiene (Health).....	8
Applied Music (including the limitation stated in the paragraph below).....	16
Physical Education (approved courses).....	4

A total of not more than four credits from the following list of courses may be counted toward a degree unless a curriculum specifically requires more extensive elections:

MUA 280.....	University Bands
MUA 281.....	University Symphony Orchestra
MUA 282.....	Jazz Lab Band
MUA 283.....	Men's Glee Club
MUA 284.....	Choral Union
MUA 285.....	Chamber Singers
MUA 287.....	Women's Chorale
MUA 288.....	Chamber Music and Special Ensembles
MUA 289.....	Chamber Choir
SPR 267.....	Radio-Television-Film Laboratory
SPC 224.....	Forensics Practicum

Repeated Subjects

It is understood that degree credit will not be granted for course work for which credit has already been granted. Since similar courses may have different names at different times and at different colleges, students are advised to make sure they do not offer repeated work as credit towards a degree.

Extra Credits

Extra credits are any credits taken 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 the proposed program carries the written approval of the adviser and the Dean.

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.¹ A student may not use the same course to satisfy more than one of the group requirements.

¹ The designation of specific courses to fulfill the different group requirements is always under study and may be revised in later bulletins.

Group One — English

Students must satisfactorily complete at least two courses in English, one of which must be English 102, Freshman Composition, or its equivalent. Any English course, 200-level or above, carrying at least three credits, will satisfy the remainder of the group requirement.

Those students whose scores on the English Placement Examination indicate need for instruction and practice in composition will be placed in English 101, Composition Seminar, which they must satisfactorily complete before they may enroll in English 102. Test placement out of English 102 is available. (Students taking the English Placement Test must apply to Testing and Evaluation, University Counseling Services; the fee is \$6.00.)

Group Two — Foreign Language

Students must complete satisfactorily the study of one of the foreign languages through the level of the third semester course offered. Those continuing the study of a foreign language begun in high school or in another college will be placed at the appropriate course level by the foreign language departments. The group requirement will be considered satisfied for those students whose test scores place them beyond the third level offered at this University. Listed below are the languages which are regularly offered and which will meet the foreign language requirement:

Arabic, see p. 353	Italian, see p. 391
Armenian, see p. 396	Latin, see p. 317
Chinese, see p. 353	Polish, see p. 397
French, see p. 388	Russian, see p. 397
German, see p. 390	Spanish, see p. 393
Greek, see p. 317	Swahili, see p. 241
Hebrew, see p. 354	Ukrainian, see p. 398

Bilingual Students: The language requirement will be considered satisfied for students who were born in and completed their 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.

Note: Prospective candidates for a degree other than that of Bachelor of Arts 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 third level course by students who intend to continue in graduate studies or to enter a professional school which requires a foreign language.

Group Three — Natural Science

The Natural Science Group Requirement of eleven credits must include:

1. At least three courses.
2. At least one course in the physical sciences.
3. At least one course in the life sciences.
4. At least one of the three courses must be in a laboratory course.

The physical science requirement can be fulfilled by courses in the Departments of Chemistry, Geology, Physics and Astronomy, and Physical Science. One mathematics course numbered 180 or higher or one logic course (Philosophy 185, 186, 520, 535, 539) or one Computer Science course numbered 200 or above will be allowed to count as a physical science course. The life science requirement may be fulfilled by courses in the Departments of Biology and Psychology, by certain courses in physical anthropology from the Anthropology Department, and by Family and Consumer Resources 203. In the Psychology

Department, either Psychology 205, 207 or 209 will satisfy the laboratory requirement.

Science Requirement for B.S. Degree

A Bachelor of Science degree requires a minimum of sixty credits in natural sciences, computer science, advanced logic, statistics, and mathematics. The eleven credits completed to fulfill the Natural Science Group Requirement are included in the sixty credits.

Combined Degrees: Students who are candidates for the Bachelor of Science on a combined degree must complete the required science credits, but the conditions vary as follows; pre-dental and pre-medical students must complete a minimum of forty credits and pre-law students must complete sixty 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 sixty-credit requirement in natural sciences, computer science, advanced logic, 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.

Group Four — Social Science

The Social Science Group Requirement of eleven credits must include:

1. At least three courses.
2. Courses in at least two separate departments.

This requirement can be fulfilled by courses in the departments of Anthropology (except certain courses in physical anthropology), Black Studies 221; Chicano-Boricua Studies 201, 241, 242, 243, 311, 312; Economics; Family and Consumer Resources 180, 355; Geography, History, Political Science, Sociology and Urban Studies.

Group Five — Humanities

The Humanities Group Requirement of eleven credits must include:

1. At least three courses.
2. Courses selected from at least two departments.

This requirement can be fulfilled by courses from the departments of: American Studies; Art and Art History; Black Studies 201; Chicano-Boricua Studies 210, 211; Classics; English; Humanities; Music; Philosophy; Speech Communication, Theatre and Journalism; and any foreign language department (Greek and Latin, Near Eastern and Asian, 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.

¹ Except for Philosophy 185, 186, 520, 535, 539.

² For courses presenting foreign literature in English translation in the foreign languages departments, see the specific departments.

CURRICULUM REQUIREMENTS

A curriculum usually designates the student's general area of interest or eventual professional choice. By choosing the General Curriculum, however, the student indicates only the intention to take a degree in one of the departments of the College or that a final goal has not been decided upon. Since educational interests may change during the course of the student's college career, a curriculum may be changed at any time by consulting an adviser.

Some curricula outline a specific program of study. Others are governed only by the group requirements and 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.

Special Curricula

The special curricula offer a comprehensive background or specialized study in a major subject or area and are available as follows:

Leading to a Bachelor of Arts Degree

American Studies

Humanities

Mass Communications,

including concentrations in Radio, Television, Film, and Electronic and Print Journalism (See Speech Communication, Theatre, and Journalism)

Leading to a Special Degree

Art

Biology

Chemistry

Computer Science

Criminal Justice

Family and Consumer

Resources

Music

Physics

Public Affairs

Theatre (See Speech

Communication,

Theatre and Journalism)

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 235 and are followed by a description of the courses pertinent to the major.

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 the sophomore year and to declare a major in the subject or field of choice by the beginning of the junior year. The student must complete all courses in the major with an overall average of C (2.0).

Declaration of Major: To declare a major, the student should consult the chairperson to the department or area selected or the designated representative well in advance of a 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

formal declaration, the student must obtain the signature of the department chairperson or the 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 the declaration of a major must be approved by the department adviser.

The major must include at least twenty credits in one subject, exclusive of the introductory courses and inclusive of some advanced work. No more than forty-six 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 be modified from time to time; therefore, it is the student's responsibility to obtain the current requirements from the major department.

For an interdepartmental or field major, the rule regarding minimum credit required in one subject is waived.

For majors which require intensive study in a particular subject, more than forty-six credits are allowed.

The major completed is part of the degree designation on the diploma.

Double Major: If a student wishes to declare a double major, the approval of the chairperson or delegated representatives of each of the departments of intended major must be obtained. If one major has already been declared, the signatures from both departments must be obtained when the second major is declared. Program authorizations must be signed by an adviser in each major department when a student with two majors registers. In order for a student to graduate with a double major, the major requirements in both areas of concentration must be fulfilled. The student must complete all courses in both majors with an over-all honor point average of C (2.0). Both majors are designated on the diploma.

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
Anthropology
Anthropology and Sociology
Art
Art History
Biology
Chemistry
Classical Civilization
Classics
Computer Science
Economics
English
Family and Consumer
Resources
French
Geography
Geology
German
Greek
Hebrew

History
Humanities
Italian
Labor Studies
Latin
Mass Communications
Mathematics
Music
Near Eastern Languages
Near Eastern Studies
Philosophy
Physics
Polish
Political Science
Psychology
Russian
Slavic
Sociology
Speech
Spanish

Leading to a Bachelor of Arts Honors Degree

Biology Honors
Chemistry Honors
Classical Civilization Honors
Economics Honors
English Honors
Geography Honors

Greek Honors
History Honors
Latin Honors
Philosophy Honors
Psychology Honors

Leading to a Bachelor of Science Degree

Computer Science (as a second major)
Geology
Mathematics
Psychology

Leading to a Special Degree

Art (Bachelor of Fine Arts)
Biology (Bachelor of Science in Biology)
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)
Medical Dietetics (Bachelor of Science in Medical Dietetics)
Music (Bachelor of Music)
Physics (Bachelor of Science in Physics)
Public Affairs (Bachelor of Public Affairs)
Speech - Theatre (Bachelor of Fine Arts)

Leading to a Special Honors Degree

Bachelor of Science in Biology Honors
Bachelor of Science in Chemistry Honors

Minor Requirements

The College of Liberal Arts offers the option of a minor. Students may choose to fulfill a minor but are not required to do so. In general, minors require 18-21 credits, and courses restricted to non-major credit cannot be applied to the minor. Reference should be made to the individual department for complete requirements. Students are strongly encouraged to consult with departmental advisers for course selections.

The notation of the minor will appear on the transcript but not on the diploma. Declaration of the minor will be made by the student only when filing for graduation.

Curricula and Co-Majors

(Taken in Conjunction with another major which leads to a Bachelor's Degree)

Black Studies
Chicano-Boricua Studies

Peace and Conflict Studies
Urban Studies
Women's Studies

Special Concentrations Available within Departments

Art: Advertising Design, Ceramics, Design, Drawing, Fibers, Industrial Design, Interior Architecture, Metalsmithing, Painting, Photography, Print-making, Sculpture (Bachelor of Fine Arts Degree)

Biology: Bio-Physics (Bachelor of Science in Biology Degree)

Family and Consumer Resources: Dietetics, Human Development and Relationships, Food Science and Human Nutrition, Design, Merchandising and Consumer Affairs, Apparel Design and Fashion Merchandising (Bachelor of Arts or Bachelor of Science in Family and Consumer Resources Degrees)

Music: Church Music, Composition, Jazz Studies and Contemporary Media, Music Education, Music Industry Management, Music Therapy, Performance, Theory (Bachelor of Music Degree)

Speech (Mass Communications): Print Journalism, Electronic Journalism, Public Relations-Advertising, Broadcasting Production, Film Studies (Bachelor of Arts Degree)

Speech: Communication Disorders and Sciences — Master's Degree required for certification — (Bachelor of Arts Degree)



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, arranging a program for each semester of three to fifteen credits. The courses in the last two years are arranged in consultation with a major adviser.

Suggested Elections

First Year

	<i>credits</i>
English.....	4-7
Foreign Language.....	4-8
Humanities.....	4-8
Natural Science.....	4-8
Social Science.....	4-8
Electives.....	0-4

Second Year

	<i>credits</i>
English.....	0-3
Foreign Language.....	4-8
Humanities.....	4-8
Natural Science.....	4-8
Social Science.....	4-8
Electives.....	0-8

PRE-PROFESSIONAL CURRICULA

Admission to a pre-professional 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.

Pre-Anesthesia for Nurses

The College of Pharmacy and Allied Health Professions offers a baccalaureate degree in anesthesia with a pre-professional program of fifty-one credits taken in the College of Liberal Arts. The program is open to registered nurses only, and admission is highly competitive and selective. The registered nurse is admitted to the professional anesthesia program through formal application procedures outlined by the Department of Anesthesia. The following courses are taken in the College of Liberal Arts prior to admission to the professional program:

	<i>credits</i>
Biology 100.....	4
Chemistry 102, 103.....	8
English 102 and 301 or 303.....	7
Psychology 101.....	4
American Government requirement.....	3-6
Social Science Elective.....	3
Speech: (one of) SPB 200, SPC 220, 312, 325, 517, or 520.....	2-3
Social Science/Humanities Electives (ANT 210 and 520 are suggested).....	8-24

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 in business administration begins after students have acquired an educational foundation during the freshman and sophomore years in the basic sciences and the arts. Students complete the following courses as pre-business administration students in the College of Liberal Arts:

Accounting.....	two semester courses in principles (Accounting 301 and 302)
Business Law.....	one course (Accounting 351)
Computer Science.....	one course (Computer Science 100)
Economics.....	two courses in principles (Economics 101 and 102)
English.....	two courses (seven semester hours) in composition (English 102 and 301) and successful completion of the English Proficiency Examination in Composition. No credit toward a degree in business administration is granted for English 101 or 108. A maximum of four credits toward a degree in business administration is granted for English 102, Freshman Composition (or equivalent).
Mathematics.....	one course in college-level mathematics, algebra and finite mathematics or calculus (Mathematics 150 or 151)
Philosophy.....	one course in practical reasoning (Philosophy 105)
Psychology.....	one course (Psychology 101 or 102)
Sociology.....	one course (Sociology 200)
Speech.....	one course in public speaking (SPB 200)
Statistics.....	one course (Economics 410)
Humanities.....	one three-semester credit course selected from the following areas: American studies, art, art history, classics, English (beyond English composition requirement), foreign language (beyond the first year), humanities, music, philosophy (not religion, and in addition to the practical reasoning course), theatre.
Natural Science.....	one three-semester credit course selected from the following areas: astronomy, biology, botany, chemistry, geology, mathematics (beyond the mathematics requirement), physical science, physics, zoology. Courses in computer science do not satisfy the mathematics option
Social Science.....	one three-semester credit course selected from the following areas: anthropology, geography, history, political science (see University Requirement in American Government, page 13), psychology (beyond the introductory course), social science, sociology (beyond the introductory course).

¹ The fifteen advanced credits which may be earned by taking an examination in medical/surgical nursing may be substituted for this requirement.

Pre-Dentistry

The Group Requirements of the College, a major field, and the basic sciences listed below lead to the bachelor's degree and qualify a student for consideration by most dental schools.

	credits
Biology or Zoology including laboratory.....	12-16
Chemistry: Inorganic, including qualitative analysis, and lab.....	8-10
Chemistry: Organic with laboratory.....	8-10
Physics with laboratory.....	8-10
English.....	8-12

Recommended electives include psychology, biochemistry, embryology, and statistics. Because some schools of dentistry may require credits in some or all of these subjects, students are advised to become familiar with *Admission Requirements of U.S. and Canadian Dental Schools* which may be ordered from the American Association of Dental Schools, 1625 Massachusetts Avenue, N.W., Washington, D.C., 20036.

Pre-Education

— See page 231.

Pre-Law

Since the requirements for admission to law schools vary from school to school, students should become familiar with the requirements of the school they plan to enter.

For admission to Wayne State Law School, the applicant should have a bachelor's 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 101, 102, 320; four courses in English; History 105, 204, 205, 516, 517, 561; Philosophy 101, 185; Political Science 101, 201, 304, 510, 511; Psychology 101; Sociology 200, 382. 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 other 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 601 (Introduction to Librarianship), Library Science 611 (General

Reference Service), and Library Science 621 (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 chairperson 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 and Pre-Osteopathic Medicine

The Group Requirements of the College, a major field, and the basic sciences listed below lead to the bachelor's degree and qualify a student for consideration by most schools of medicine and osteopathic medicine.

	credits
Biology or Zoology (including genetics) with lab.....	12-20
Inorganic Chemistry (including qualitative analysis) with lab.....	8-10
Organic Chemistry with laboratory.....	8-10
Physics with laboratory.....	8-10
English.....	8-12

Recommended electives include psychology, sociology, biochemistry, embryology, and statistics. Because some schools may require credits in some or all of these subjects, students are advised to become familiar with *Medical School Admission Requirements*, which may be ordered from the Association of American Medical Colleges, One Dupont Circle, N.W., Washington, D.C., 20036. The admission requirements of specific schools of osteopathic medicine are available from the American Association of Colleges of Osteopathic Medicine, 4720 Montgomery Lane, Suite 609, Washington, D.C., 20014.

The Wayne State University School of Medicine encourages students to fulfill degree requirements by selecting courses which will contribute significantly to a broad cultural background and by choosing a major in which one is interested. The Committee on Admissions is influenced by the scholarly approach to education, not by the area in which one concentrates.

Pre-Medical Technology

The program leading to the Bachelor of Science degree in Medical Technology fulfills the requirements for medical technology education of the Committee on Allied Health Education and Accreditation. A graduate from Wayne State University with the degree of Bachelor of Science in Medical Technology is eligible to take a national certification examination in Medical Technology.

A student applying for acceptance into the pre-professional curriculum (freshman and sophomore years) in the College of Liberal Arts should have taken these courses in high school:

	high school units
Physics.....	1
Chemistry.....	1
Algebra.....	1.5
Geometry.....	1
Trigonometry.....	0.5
Recommended: Latin, German or French	

Since the College of Liberal Arts does not offer credit courses covering the first unit of work in algebra, entrance deficiencies in this subject will have to be made up at a high school. Before the first course in college chemistry or college mathematics can be taken, the student must pass a placement test.

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

	credits
Biology 101 and 220	7
Chemistry 107 and 108	9
English 102	4
Medical Technology Seminar 208	1
Mathematics 180	4
Political Science 101	4

Second Year

	credits
Biology 187	5
Chemistry 510	3
English Elective	3
Humanities Elective	3
Physics 214	4
Speech (SPB) 200	3
Electives	10

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 fifty-two of the sixty credits required in pre-professional courses, including the required subjects listed below.

Required Elections

	credits
English (two semesters or two quarters)	6
Chemistry (General Inorganic with laboratories (two semesters or two quarters))	8
Zoology or Biology	3
Social Science	6
Psychology	3
Mathematics or Accounting	3

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 the department at 627 W. Alexandrine as early as possible.

Pre-Nursing

Students who wish to enter the College of Nursing must complete thirty credits in liberal arts. Courses marked with an asterisk are prerequisites for admission to the College of Nursing. All courses marked with an asterisk must be completed with a grade of 'C' or better and students must qualify in mathematics. A separate application must be submitted to the College of Nursing by July 10.

I. English Communications

	credits
English 102*	4
English 303 (Writing the Research Paper)	3

II. Natural Sciences

Biology 100 or 101* and 220*	7
Chemistry 102* and 103*	8
Psychology 101*, 240 (pre- or corequisite to Nursing 211 or 212)	8

III. Mathematics*

The mathematics requirement may be met by satisfactory completion of the mathematics qualifying examination, a grade of 'S' in Mathematics 090 or a college algebra course—not 095.

IV. Social sciences—three courses

Sociology 200* and Political Science 101	6-8
Social Science Elective (400-699)	3

V. Humanities—a minimum of two courses 6

Fulfillment of the humanities requirement must include at least one course in American or English literature.

VI. Other

Family and Consumer Resources 221	3
(Prerequisite or corequisite to Nursing 212)	

VII. Elective—in Liberal Arts 2-4

To meet degree requirements, students must complete sixty-three credits in general education courses. The general education requirement includes eleven credits of Basic Mechanisms of Disease to be taken after admission to the College of Nursing.

Pre-Occupational Therapy

The degree Bachelor of Science in Occupational Therapy is offered in the College of Pharmacy and Allied Health Professions. The program is accredited by the Committee on Allied Health Education of the American Medical Association in collaboration with the American Occupational Therapy Association and prepares students to take the national certification examination.

An application for the professional program must be submitted to the Occupational Therapy Department by April 15 of the year the student wishes to enter. The professional program begins during the summer term.

The sixty semester credits of pre-professional courses listed below may be taken in the College of Liberal Arts:

First and Second Years

	credits
BIO 101 — Basic Biology I	4
BIO 102 — Basic Biology II	4
CHM 102 — General Chemistry I	4
ECO 101 — Macroeconomics	
or	
ECO 102 — Microeconomics	4
ENG 102 — Freshman Composition	4
ENG 301 — Techniques of Expository Writing	3
MAT 180 — Elementary Functions	4
PHS 210 — Applied Physical Science	4
P S 101 — Introduction to American Government	4

PSY 102 — Elements of Psychology.....	3
PSY 331 — Abnormal Psychology.....	4
SOC 200 — Understanding Human Society.....	3
SPB 200 — Effective Speech.....	3
SPC 520 — Group Communication and Human Interaction.....	3
Electives.....	10

It is suggested that students in the Pre-occupational Therapy program take one or more of the following courses:

OT 201 — Survey of Occupational Therapy.....	2
OT 204 — Therapeutic Activities I (Therapeutic Crafts).....	2
OT 205 — Therapeutic Activities II (Therapeutic Recreation).....	2

Pre-Optometry

The Group Requirements, a major field, and the courses listed below lead to the bachelor's degree and qualify a student for consideration by most schools of optometry. Although some schools will accept students who have completed only two years of undergraduate work, preference is given to those who have earned the bachelor's degree.

Biology, including microbiology, with laboratory.....	12-16
Inorganic chemistry with laboratory.....	8-10
Organic chemistry with laboratory.....	6-8
Physics with laboratory.....	8-10
Mathematics:	
Algebra and Trigonometry.....	3-4
Calculus.....	6-8
English.....	6-8
Psychology.....	3
Statistics.....	3

Recommended electives include biochemistry and social sciences. Information about specific schools is available from the Association of Schools and Colleges of Optometry, 1730 M Street, N.W., Washington, D.C., 20036.

Pre-Pharmacy

The Wayne State University College of Pharmacy and Allied Health Professions offers a Bachelor of Science degree in pharmacy. Completion of program requires a minimum of five years. Students are registered for their first two years in the College of Liberal Arts (or some other accredited college) in which they must complete the courses listed below (or their equivalents) with grades of 'C' or better.

Admission to the first year Pharmacy curriculum in the College of Pharmacy and Allied Health Professions is competitive and selective (see Pharmacy Admission Requirements, page 503). Students are admitted only for the fall semester.

Pre-pharmacy courses taken under the direction of the College of Liberal Arts:

	<i>credits</i>
BIO 101 — Basic Biology I.....	4
BIO 220 — Introductory Microbiology.....	3
CHM 107 — Principles of Chemistry I.....	4
CHM 108 — Principles of Chemistry II.....	8
CHM 224 — Organic Chemistry I.....	4
CHM 226 — Organic Chemistry II.....	4
ECO 100 — Survey of Economics.....	4
ENG 102 — Freshman Composition.....	4
English Elective.....	3-4
MAT 201 — Calculus I.....	4
PHY 213 — General Physics.....	4
PHY 214 — General Physics.....	4

P S 101 — American Government.....	4
STA 102 — Elementary Statistics.....	3
Electives (Social Sciences or Humanities).....	6-8

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 and the School of Medicine.

The first two years are taken in the College of Liberal Arts. It is recommended that students interested in the professional program in physical therapy have the following high school courses: biology, chemistry, language, physics, geometry, and intermediate algebra. Freshmen and transfer students may obtain application forms for admission to the College of Liberal Arts from the Office of Admissions of the University. Students who already hold an undergraduate degree are eligible to receive a second bachelor's degree.

The professional program is two and one-half academic years. Students must apply to the Department of Physical Therapy for information and application forms. Application must be received by February 15 for the fall semester in which the professional program begins each year. Only thirty students are accepted. Students admitted to the program must have completed all prerequisite courses or their equivalents, have a minimum grade point average of 2.7, be in good health, and possess the personal qualifications necessary for the professional responsibilities of a physical therapist. All applicants to the professional program are required to take the Allied Health Professions Admission Test (AHPAT) and a personal interview is recommended.

This program of study in physical therapy is accredited by the American Physical Therapy Association. Graduates of the program are eligible to take physical therapy licensure examinations and are eligible for active membership in the American Physical Therapy Association.

Pre-Professional Course Requirements

	<i>Credits</i>
BCH 101 — Introductory Biochemistry (Medicine).....	2
BIO 101 — Basic Biology I.....	4
BIO 102 — Basic Biology II.....	4
BIO 271 — Comparative Vertebrate Zoology.....	5
CHM 105 — Introductory Principles of Chemistry.....	6
or	
CHM 107 — Principles of Chemistry I.....	4
ENG 102 — Freshman Composition.....	4
English Elective, Advanced (301 suggested).....	3
MAT 180 — Elementary Functions.....	4
PHY 213 — General Physics.....	4
PHY 214 — General Physics.....	4
PHI 111 — Medical Ethics.....	3
P S 101 — American Government.....	4
PSY 101 — Introductory Psychology.....	4
PSY 130 — Psychology of Adjustment.....	4
or	
PSY 331 — Abnormal Psychology.....	4
PSY 240 — Developmental Psychology.....	4
SPB 200 — Effective Speech.....	3
or	
SPC 520 — Group Communication and Human Interaction.....	3
SOC 200 — Understanding Human Society.....	3
Total: 63	

Pre-Radiation Therapy Technology

The Bachelor of Science degree in radiation therapy technology requires four years of study, two years of pre-professional courses and two years of professional courses, comprising a minimum of 128 semester credits. This program is accredited by the Committee on Allied Health Education and Accreditation of the American Medical Association in cooperation with the Joint Review Committee on Education in Radiologic Technology. The curriculum is in compliance with the recommendations of the American Society of Radiologic Technologists. Upon completion of the program, the student is eligible to take the national certification examination administered by the American Registry of Radiologic Technologists.

The pre-professional program is offered by the College of Liberal Arts, and students must apply to this college for admission. Students are admitted to the professional curriculum by the College of Pharmacy and Allied Health Professions in the fall semester of each year. Application for admission to the professional program should be made in the sophomore year and a completed application must be submitted by April 15 for the following fall registration. Application forms and procedures can be obtained from the Liberal Arts Advising office or the Department of Radiation Technology. Applicants must have a minimum honor point average of 2.5 or better (A = 4.0) and must have acquired a minimum of sixty semester credits (or their equivalents) and have completed all pre-professional course requirements. All applicants must take the Allied Health Professions Admissions Test (AHPAT) no later than March of the year in which admission is sought. Application forms and information for this examination can be obtained from the Office of Testing and Evaluation, 343 Mackenzie Hall.

High school students planning to enter this program are urged to enroll in as many high school English, mathematics, and laboratory science courses as possible. This will provide students with the best background for successful completion of the college requirements. Students in the pre-professional program are invited to contact the Department of Radiation Technology early in the curriculum for career counseling. Course counseling for the pre-professional program taken in the College of Liberal Arts is provided by the Liberal Arts Advising staff.

First and Second Years

	<i>credits</i>
BIO 101 — Basic Biology I.....	4
BIO 102 — Basic Biology II.....	4
BIO 220 — Introductory Microbiology.....	3
<i>or</i>	
¹ BIO 271 — Comparative Vertebrate Zoology.....	5
CHM 102 — General Chemistry I.....	4
CHM 103 — General Chemistry II.....	4
ENG 102 — Freshman Composition.....	4
ENG 301 — Techniques of Expository Writing.....	3
MAT 180 — Elementary Functions.....	4
PHY 213 — General Physics.....	4
PHY 214 — General Physics.....	4
SPB 200 — Effective Speech.....	3
P S 101 — American Government.....	4
PSY 101 — Introductory Psychology.....	4
PSY 130 — Psychology of Adjustment.....	4
² Electives.....	7-9
Total:	60 or 62

¹ Biology 271 is preferred.

² Contact the Liberal Arts Advising office for a list of recommended electives.

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. Sixty credits of course 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

Anthropology—3-4 credits
 Economics—3 credits (ECO 101, Principles of Macroeconomics, is recommended)
 History—3 credits
 Political Science—3-4 credits
 Sociology—2 courses (generally 6 credits)

B. NATURAL SCIENCE

Biology—3-4 credits
 Psychology—3 courses (generally 12 credits). Field Practicum courses do not meet this requirement.
 One course (3-4 credits) to be selected from the following: Physical Science, Chemistry, Geology, Physics and Astronomy, Mathematics 180 or above, or one Computer Science course 200 or above.

C. HUMANITIES

Philosophy—3 credits
 One course to be selected from the following: Classics, Humanities, Music and Art History, literature in a foreign language department, American Studies, English literature, Black Studies 201, Chicano-Boricua Studies 210, 211, Speech Communication, Theatre and Journalism*

D. ENGLISH

Freshman Composition—4 credits
 English Elective—3 credits

Electives: The student may select appropriate courses from any discipline in the College of Liberal Arts, College of Lifelong Learning, Weekend College Program 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 four semesters of study at the junior and senior years. During each year 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 semester.

Usually the four semester program of class and field work is a program of full-time study extending over two successive academic years, beginning in the fall semester. 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 forty credits of work or equivalent at the freshman and sophomore levels. Applications are reviewed only when all supporting materials have

* Not all speech courses may be counted toward fulfillment of the requirement; students should consult an adviser before registering to be certain that a particular course will earn Humanities credit.

been received and are then processed up to the enrollment capacity of the program. Deadline for submission of initial applications for August admission is March 31. Applications received after the closing date cannot be guaranteed processing, nor can applications for August admission be guaranteed processing if all supporting material is not received by March 31. If students have not completed sixty credits at the freshman and sophomore levels by March 31, they must submit evidence of work completed to that date, a statement indicating that they are in the process of completing the sixty credits and a new transcript upon completion of the work.

In addition to admission requirements indicated above, 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, School of Social Work, the form *Admission to the School of Social Work, Supplementary Information Form*; (3) have earned a minimum over-all honor point average of 2.6; (4) show evidence of suitability for the profession and the ability to undertake successfully undergraduate professional education in social work.

Pre-Veterinary Medicine

The Group Requirements, a major field, and the courses listed below lead to the bachelor's degree and qualify a student for consideration by the College of Veterinary Medicine at Michigan State University.

	<i>credits</i>
BIO 101 — Basic Biology I.....	4
BIO 102 — Basic Biology II.....	4
BIO 561 — Vertebrate Embryology.....	4
CHM 107 — Principles of Chemistry I.....	4
<i>or</i>	
CHM 105 — Introductory Principles of Chemistry.....	6
CHM 108 — Principles of Chemistry II.....	5
CHM 224 — Organic Chemistry I.....	4
CHM 226 — Organic Chemistry II.....	4
CHM 227 — Organic Chemistry Laboratory.....	2
CHM 662 — Biochemistry I.....	3
CHM 664 — Biochemistry II.....	3
MAT 180 — Elementary Functions.....	4
PHY 213 — General Physics.....	4
PHY 214 — General Physics.....	4
<i>or</i>	
PHY 217 — General Physics.....	4-5
PHY 218 — General Physics.....	4-5
English Electives.....	8

Additional requirements include three courses which are available only at Michigan State University: Animal Husbandry, Poultry Science and Dairy Science. These may be taken there as a Guest Student. Other requirements in social sciences and humanities may be satisfied by meeting the Liberal Arts Group Requirements.

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. A health re-check is required at the time of admission to the College of Education.

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 College of Liberal Arts academic advisers for general counseling. Application for entrance to the College of Education should be submitted after the completion of fifty-three 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 major and minor subjects in the secondary school. In this curriculum the student takes the first two years of work in the College of Liberal Arts. The third and fourth years may be taken in either college depending on choice of degree.

In electing courses during the first two years, in addition to acquiring a broad, general education, students should begin electing courses that may be required by their future major department.

Students interested in this program should consult a Liberal Arts academic adviser who will supply a curriculum outline, provide guidance and direct them to the adviser in the major at the beginning of the 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 the junior year. However, after completing fifty-three credits in course work the student 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 junior and senior years the program requests will be signed both by a 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 fifty-three credits in course work, transfers to that College at the beginning of the junior year and follows the degree requirements of the College of Education.

All pre-education students are required to complete TED 225 prior to admission to the College of Education.

K-12 Majors

Students wishing to major in Art 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, Matthaehi Building.

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 101, HEA 231 (or equivalent) and two credits in Physical Education.

English Speech Group: four courses, including ENG 102, a 200-level English course, SPB-200 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 201 and 501, BIO 100 and 103, CHM 100, GEL 100 and 101, PHS 191, 192, and 193, PHY 102, 104 and 106 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 Education Programs

These programs are 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 Occupation Competency Examination if they feel that their experiences in a trade or technical area have 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 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 twenty-four 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 191-192). 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 101, HEA 231 (or equivalent), MAT 111 and 112 and two credits in Physical Education.

English/Speech Group: ENG 102, a 200 level English course and SPB 200.

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 201 and 501, BIO 100 and 103, CHM 100, GEL 100 and 101, PHS 191, 192 and 193, PHY 102, 104 and 106 or other science courses.

Humanities: HUM 485 or equivalent.

Pre-elementary students should also elect 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: visually impaired, multiple impaired (mental and physical impairments), and speech impaired.

In the first two years of work, students should take courses to establish a twenty-four credit minor and the following general education requirements:

College of Education general requirements: PSY 101, HEA 231, MAT 111 and 112, and two credits in Physical Education.

Special Education requirements: BIO 100 and HEA 233. BIO 187 is required of students in the multiple impaired program.

English/Speech Group: ENG 102, a 200-level English course and SPB 200. (ELE 320, Literature for Children, will be taken after admission to the College of Education.)

Humanities: HUM 485 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.

Counselor Education

The Bachelor of Science Degree in counselor education is designed to prepare individuals seeking employment in institutional, school and agency settings which are concerned with educational and career counseling and educational program development. Students interested in guidance and counseling who enter Wayne State University directly from high school or transfer from other colleges with less than fifty-three credits are admitted by the University Admissions Office into the College of Liberal Arts where they pursue a pre-counseling curriculum. This includes courses in the counseling program at the freshman and sophomore levels. Program information can be obtained from Liberal Arts Advising or Room 311, Education Building.

ACADEMIC PROCEDURES

Graduate

For complete information regarding graduate rules and regulations, students should consult the Graduate School section of this bulletin, beginning on page 18. The following additions and amendments pertain to the College of Liberal Arts.

Regular Admission

—see page 18.

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/her 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 in the Graduate School section, page 22.

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 School, 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/she proposes to major to determine whether examinations must be taken.

If a student is required to take such an examination, he or she must apply for it at the Testing and Evaluation Office, Room 343, Mackenzie Hall either prior to or at the time of admission. If the student has previously taken the examination, he or she may have a transcript of his or her scores filed. After the first registration, no subsequent enrollment will be permitted nor will candidacy be authorized until the examination requirements 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 course work, research, scholarly writing, examinations and personal fitness for a chosen profession.

Master's Degrees and Majors

*Master of Arts—
with majors in*

Anthropology

History

Applied Mathematics*
Art
Art History
Chemistry
Classics
Comparative Literature
Computer Science
East European Studies
Economics
English
Family and Consumer
Resources
French
Geography
German

Italian
Latin
Linguistics*
Mathematics
Mathematical Statistics
Music
Near Eastern Languages
Philosophy
Physics
Political Science
Psychology
Russian
Sociology
Spanish
Speech

*Master of Arts in Teaching College Subjects or Fields— with
majors in*

Mathematics

Speech

This 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
or with a Major in Criminal Justice*

*Master of Science—
with majors in*

Biological Science
Chemistry
Computer Science
Family and Consumer Resources*

Criminal Justice*
Geology
Physics

*Master of Urban Planning—
with a major in Urban Planning*

Doctoral Degrees and Majors

*Doctor of Philosophy—
with majors in*

Anthropology
Biological Sciences
Chemistry
Economics
English
History
Mathematics

Modern Languages
Philosophy
Physics
Political Science
Psychology
Sociology
Speech

* Designation of the field is part of the degree title.

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 School section of this bulletin, beginning on page 18. 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/she plans to major.

Candidacy

Candidacy is an advanced status which is recommended by the student's adviser and authorized by the Graduate School 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 official 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 Graduate School; master's applicants with the graduate officer of the College. In preparing a *Plan*, the student should evaluate with care his/her personal and professional objectives as well as all degree and departmental requirements.

Admission 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 fill a *Plan of Work* by the time the equivalent of eight to twelve 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 twelve 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/she has earned approximately forty 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—and must have submitted and received the Graduate Dean's approval on the Dissertation Outline 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 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 thirty-two credits—under either Plan A or Plan B or Plan C as follows:

Plan A requires twenty-four credits of work plus an eight credit thesis.

Plan B requires twenty-nine credits of work plus a three credit essay.

Plan C requires thirty-two 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 twenty-four credits must be taken in residence.

At least six credits of work in the major field, in addition to the essay or thesis, must be in courses open only to graduate students (700 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 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/her doctoral committee, one must have filed a *Plan of Work* and have submitted and received the Graduate Dean's approval on the Dissertation Outline. 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 chairperson of the departmental committee on doctoral study or his/her designee and a graduate examiner approved by the Graduate School. 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 time, and upon consultation with the Chairperson of the student's doctoral committee, a member outside of the student's major department is appointed to the committee by the Graduate School. 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/she, 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 School 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 24 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/she has derived from his/her 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 School, unless prior approval of such publication has been secured from both the adviser and the Graduate School. 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 a manuscript until he/she has submitted an approved *Plan of Work* and outline form. He/she 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 899 in the department of their major. This course is entitled *Master's Thesis Research and Direction* and must be elected for a total of eight credits. Ph.D. candidates register for thirty credits in the course numbered 999 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 manuscript has been received and accepted by the Graduate Office.

— Outline and Record Form

Before a student begins work on the thesis or dissertation, he/she must file an outline and record form. Master's candidates must prepare three copies which, after receiving departmental approval, will be forwarded to the Liberal Arts Graduate Office. Doctoral candidates must prepare four copies which, after receiving departmental approval, will be forwarded to the Graduate School.

AMERICAN STUDIES

Office: 826 Mackenzie Hall

Advisory Committee

English: Henry Golemba, David S. Herreshoff, Vern Wagner; *History:* Richard D. Miles, Alan Raucher (Director); *Humanities:* Sandra McCoy

American Studies is an interdepartmental program administered by an advisory committee composed of specialists on American culture, offering undergraduates a unique opportunity for a flexible and diversified major. By enrolling in a core of required courses and by choosing electives among the humanities and social sciences, majors concentrate on the study of the nature and development of American society and culture. Depending on individual interests, electives may be chosen from the departments of Anthropology, Art History, Economics, English, Geography, History, Humanities, Philosophy, Political Science, Sociology, and some interdisciplinary programs, such as Black Studies, Chicano-Boriqua Studies, and Urban Studies. Interested students should consult the director or those committee members whose fields most closely approximate their own interests.

Bachelor of Arts

Curriculum and Major Requirements: Majors must complete twenty-seven credits in required courses:

American Studies: six credits; A S 201 and A S 501 or A S 597.

English: at least nine credits, selected from among ENG 314 and 540 through 549 (at least one course must be on the 500 level); or their equivalents.

History: at least 10 credits; HIS 204 and 205; HIS 519; or their equivalents.

Majors must also complete eighteen credits in course work pertaining to American culture and institutions in at least three departments. Selection of these courses, which may also meet the Liberal Arts College group requirements, must be made in consultation with the director of American Studies.

COURSES OF INSTRUCTION¹ (A S)

201. Introduction to American Culture. Cr. 3 or 4
Conflicts and changes in American values, ideas, heroes, and national self-definition introduced through the study of literature, art, films, and other cultural expression.

501. American National Character. Cr. 3 or 4
Inquiry into the values of American civilization from the beginnings of the American experience to the present, with a view to understanding the distinctive characteristics of the American people.

597. Seminar in American Studies. Cr. 3 or 4 (Max. 8)
Reading, discussion, and individual research oriented toward a common theme or problem in the study of American culture. Topics to be announced in *Schedule of Classes*.

¹ See page 633 for interpretation of numbering system, signs and abbreviations

ANTHROPOLOGY

Office: 137 Manoogian

Chairperson: Jane H. Hill

Professors

Barbara C. Aswad, James B. Christensen, Jane H. Hill, Bernice A. Kaplan, Leonard W. Moss, Arnold R. Pilling, Victor A. Rapport (Emeritus)

Associate Professors

Gordon L. Grosscup, Helen E. Hause, Bernard Ortiz de Montellano, Mark L. Weiss

Assistant Professors

Barry A. Bogin, Carole Browner, Sue Taylor

Adjunct Professors

Morris Goodman, Gabriel W. Lasker, Madeleine Leininger

Adjunct Associate Professor

Marietta L. Baba

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, ethno linguistics, 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, law, or environmental studies; (3) those preparing for employment in historical or natural science museums; (4) those seeking to enter the fields of cultural resource management; (5) those expecting to work with the general public and, therefore, requiring a broad grasp of the nature of society, group behavior and social change; (6) those looking forward to teaching anthropology or another of the social or behavioral sciences; (7) those preparing for a career in a foreign country, in international studies, or in foreign affairs; (8) those planning to pursue graduate studies in anthropology. Students who plan to enter cultural resource management, museum work, historical archaeology, 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 School of Social Work.

Minor in Anthropology: The election of a minor in anthropology is appropriate for students in a variety of disciplines who wish to add a comparative bio-cultural perspective on the study of human beings to

their area of specialization. The minor requires a minimum of eighteen credits in anthropology courses including ANT 210 and ANT 211 (each offered for three to four credits), as well as one of the following: ANT 520, 527, or 531 (all offered for three credits). Students must elect an additional nine credits in Anthropology elective courses. Total credits, other than Anthropology 210, must be at least fourteen for all students (including transfers).

In order for students to gain maximum benefit from their minor in conjunction with their major, it is strongly recommended that they consult with an adviser in the department before electing their courses. A list of elective courses appropriate for combination with a variety of majors is available from the Department.

Bachelor of Arts With a Major in Anthropology

Major requirements: Students majoring in anthropology are required to elect a minimum of thirty credits in anthropology, including Anthropology 210, 211, 520, 527, 531, and 638 or 639.

Limitations: Students may not elect more than forty-five credits in course work, within the Department. Courses in Swahili (Swahili 215 through 217) 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.

Honors: The Norman D. Humphrey Memorial Award is granted annually to students admitted to Sigma Xi and Phi Beta Kappa.

— With a Major in Anthropology and Sociology

Major Requirements: Students majoring in anthropology and sociology are required to take Anthropology 210, 211, 520, 527, 531 and 638 or 639, Sociology 201 or Social Science 191-192*, Sociology 202, 420, 410 and 405 or 605 or 606. They must complete a total of at least twenty credits in sociology and twenty credits in anthropology, but not more than forty-five credits in the two fields combined.

Master of Arts With a Major in Anthropology

Plan A: Twenty-four credits in course work plus a thesis.

Admission: The student must have had the following courses or their equivalents: Anthropology 210, 211, 520. 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. Recommendation forms may be secured from the Department office and forms are to be returned to the chairperson of the Department. Applicants will not be admitted to graduate work until this material has been received and evaluated.

*Majors in combined anthropology-sociology may not count both Sociology 201 and Social Science 191-192 as part of their twenty credit requirement in sociology. Those who elect Social Science 191-192 will receive four credits toward their major, unless, at the discretion of the department, they are required to take Sociology 201; in such case, the 191-192 sequence shall count only toward the social science group requirement.

groups. Languages used to express social roles and statuses, caste, class, and ethnic diversity. Such aspects of language variability as "street" or vernacular languages, literary standard languages, pidgin and creole languages, and multilingualism.

533. Arab Society in Transition. (SOC 533) (N E 533). Cr. 3
Prereq: ANT 210, SOC 200 or consent of instructor. Distinctive social and cultural institutions and processes of change in the Arab Middle East. Regional variations: discussion of current political and economic systems and their relationship to international systems.

534. Arabic Speaking Communities in the Detroit Area. (SSE 534). Cr. 3

The study of various social aspects of Arab Communities in the Detroit region such as: family, religion, causes and effect of migration, cultural attitudes, social activities and problems.

535. Economic Anthropology. Cr. 3
Prereq: ANT 210 or 520 or S S 191 or SOC 201 or consent of instructor. Cross-cultural analysis for testing economic concepts. Technology, trade, incentives, rewards, division of labor, specialization, property in different societies.

537. Anthropology of Religion. Cr. 3
Prereq: ANT 210 or 520 or S S 191 or SOC 201 or consent of instructor. The nature and variety of religious belief and practice; theoretical interpretations.

540. Medical Anthropology. Cr. 3
Prereq: ANT 210 or consent of instructor. An anthropological perspective on the study of health and illness. Folk medical beliefs and practices, cultural patterns for coping with illness, and organization of health institutions cross-culturally.

551. Precolombian Mesoamerican Cultures. (CBS 351). Cr. 3
Prereq: ANT 210 or consent of instructor, or CBS 201. Survey of the history and characteristics of cultures in Mesoamerica prior to colonization, from the Maya and Olmec to the Aztec.

556. (N E 556) Development of Biblical Religion I. Cr. 3
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.

557. (N E 557) Development of Biblical Religion II. Cr. 3
Development of biblical religion within the Old Testament with attention to the prophetic movement and the wisdom literature.

560. Anthropological Museology. Cr. 3
Prereq: ANT 210 and 527 or consent of instructor. Introduction to specimen identification and care, cataloging procedure, display techniques and museums.

570. Applied Anthropology. Cr. 3
Prereq: ANT 210 or 520 or consent of instructor. The application of anthropological concepts and methods to contemporary issues of public concern in the United States and developing nations.

600. Social Organization. Cr. 3
Prereq: ANT 210 or 520 or consent of instructor. Advanced survey of the anthropological concepts and theories concerning kinship, economics, politics, peasants, urbanization and urban anthropology.

608. Studies in Folklore. (ENG 560). Cr. 3
Prereq: ENG 228 or ENG 360 or ENG 465 or ANT 210 or consent of instructor. Use of folklore in literature; field work; analysis of collected oral literature; separate genres of oral literature and analysis of parallel texts. Topics to be announced in *Schedule of Classes*.

609. Culture and Ecology. Cr. 3
Prereq: ANT 210 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.

610. Human Growth and Development. Cr. 3
Prereq: ANT 210 or 211 or consent of instructor. Normal and abnormal physical growth from conception to old age. Influence of heredity and environment. Ethnic and sex differences in growth and development. Psycho-social correlates of physical growth. Methods for gathering and interpreting growth data.

611. Human Genetic Variation. Cr. 3
Prereq: ANT 211 or consent of instructor. Genetic variation as a mechanism of human adaptation. Genetics of the evolutionary processes; techniques to assess variability and the operation of evolutionary forces. Genetic adaptation to environmental stressors.

612. Human Physiological Adaptation. Cr. 3
Prereq: ANT 211 or consent of instructor. Human physiological adaptation to environmental stress studied from a bio-cultural perspective. How human populations normally function under the stress of cold, heat, solar radiation, high altitude, malnutrition, disease, urbanization, and other extreme environmental conditions.

613. Methods of Physical Anthropology. Cr. 3
Prereq: ANT 211 and consent of instructor. Material fee as indicated in *Schedule of Classes*. Use of, and theory behind, techniques employed by physical anthropologists. Means of studying human microevolution.

617. Political Anthropology. Cr. 3
Prereq: ANT 210 or 520 or S S 191 or SOC 201 or consent of instructor. Comparative political systems of traditional societies. Government, the state, warfare, law, and social control. Theoretical approaches with analysis of representative societies.

618. Theory and Problems of Emergent Countries. (SOC 694). Cr. 3 (Max. 6)
Prereq: ANT 210 or 520 or S S 191 or SOC 201 or consent of instructor. Underdeveloped and developing countries. Emergent nationalism and socio-cultural factors affecting change. Cultural, demographic, institutional, technological aspects.

620. Cultures and Peoples of the Mediterranean. Cr. 3
Ecological, geographic, ethnohistoric and linguistic patterns of specific Mediterranean societies. Urban and peasant sectors and their values and themes. Contemporary problems and cultural change. Topics to be announced in *Schedule of Classes*.

623. Cultures of Subsaharan Africa. Cr. 3
Prereq: ANT 210 or S S 191 or SOC 201 or consent of instructor. Subsaharan African cultures and societies; emphasis on both complex and simple political systems.

624. Stability and Change in Contemporary Africa. Cr. 3
Prereq: ANT 210 or SOC 201 or S S 191 or consent of instructor. Cultural and social change in Subsaharan Africa; impact of European and North African culture on the societies of the subcontinent.

627. Native Americans. Cr. 3
Prereq: ANT 210 or 520 or S S 191 or SOC 201 or consent of instructor. Survey of Indian and Eskimo cultures north of Mexico; adjustment to environment; history of the several tribes.

629. Culture Area Studies. Cr. 3
Prereq: ANT 210 or 520 or S S 191 or SOC 201 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*.

630. Cultures and Societies of Latin America. Cr. 3

Prereq: S S 191 or ANT 210 or ANT 520 or HIS 260 or HIS 526 or SOC 201 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.

631. Comparative Family Patterns of American Ethnic Groups. Cr. 3

Prereq: ANT 210 or SOC 201 or S S 191 or consent of instructor. Courtship, marriage, division of labor within household, and other patterns between kinsmen. The old New England Puritan tradition, Amish, Irish, Polish, Black, Eastern European Jewish.

636. (HIS 786) Oral History: A Methodology for Research. (L S 777). Cr. 3

Prereq: consent of instructor. Oral history as a methodology for research. Interviewing procedures and techniques of indexing, transcribing, and analyzing the content of oral history.

638. Anthropological Theory Before 1940. Cr. 3

Prereq: ANT 210 or 520 or consent of instructor. Theoretical analysis and explanation of contemporary anthropological problems as perceived in Europe and America before 1940.

639. Contemporary Theory in Anthropology. Cr. 3

Prereq: ANT 638 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.

640. Ethnic and Cross-Cultural Aspects of Aging. Cr. 3

Prereq: SOC 501 or ANT 210 or ANT 520 or former S S 191 or consent of instructor. An analysis of the position, function and role of the elderly in selected societies around the world.

649. Historical Archaeology of North America. Cr. 3

Prereq: ANT 212 or 527 or consent of instructor. Archaeological techniques and their uses in augmenting the historical record of North America; types of historic sites; preparation of land use histories; artifact types; interpretation of excavations.

650. North American Prehistory. Cr. 3

Prereq: ANT 210 or consent of instructor; 527 recommended. Prehistory of North America north of Mexico from the late Pleistocene to Euro-American contact.

651. Latin American Prehistory. Cr. 3

Prereq: ANT 210 or consent of instructor; 527 recommended. Prehistory of Latin America with emphasis on the beginnings and the more elaborate cultures, including the Inca, Chibcha, Olmec, Maya, Aztec and others.

665. Studies in Physical Anthropology. Cr. 2-4 (Max. 12)

Prereq: ANT 211 or consent of instructor. Selected topics in physical anthropology. Topics to be announced in *Schedule of Classes*.

666. Studies in Archaeology. Cr. 2-4 (Max. 12)

Prereq: ANT 527 or consent of instructor. Selected topics in archaeology or the prehistory of one area of the world. Topics to be announced in *Schedule of Classes*.

667. Studies in Anthropological Linguistics. (LIN 667). Cr. 2-4 (Max. 12)

Prereq: ANT 531 or 532 or consent of instructor. A selected topic in anthropological linguistics.

668. Studies in Cultural Anthropology. Cr. 2-4 (Max. 12)

Prereq: ANT 210 or 520 or consent of instructor. Selected topics in cultural anthropology. Topics to be announced in *Schedule of Classes*.

669. Topics in Urban Anthropology. Cr. 3

Prereq: ANT 210 or consent of instructor. Study of the dialogue between theory and application, anthropology as public policy, roles and institutional settings, educational and ethical implications.

700. Colloquium. Cr. 1

Prereq: graduate standing. Offered for S and U grades only. Must be elected every semester by all graduate anthropology students. Lectures in all areas of anthropology given by visitors, graduate staff, advanced graduate students, and others.

710. Studies in Linguistics. (LIN 710). Cr. 3-12 (Max. 12)

Prereq: ANT 529 and 530 or consent of instructor. Topics to be announced in *Schedule of Classes*.

720. Methodology and Research Techniques. Cr. 1-3 (Max. 6)

Prereq: consent of instructor. Preparation for field or laboratory research. Training relevant to student specialization.

760. Seminar in Problems and Concepts in Physical Anthropology. Cr. 3 (Max. 9)

Prereq: consent of instructor. Central concepts and theories. Current developments, problems, and contemporary research orientations. Topics to be announced in *Schedule of Classes*.

761. Seminar in Problems and Concepts in Linguistics. (LIN 761). Cr. 3 (Max. 9)

Prereq: consent of instructor. Central concepts in linguistics. Current developments, problems, and contemporary research orientations in the field. Topics to be announced in *Schedule of Classes*.

762. Seminar in Problems and Concepts in Archaeology. Cr. 3 (Max. 15)

Prereq: consent of instructor. Central concepts and theories. Current developments, problems and contemporary research orientations. Topics to be announced in *Schedule of Classes*.

763. Seminar in Problems and Concepts in Cultural Anthropology. Cr. 3 (Max. 9)

Prereq: consent of instructor. Central concepts and theories. Current developments, problems and contemporary research orientations. Topics to be announced in *Schedule of Classes*.

764. Seminar in Problems and Concepts in Linguistic Anthropology. (LIN 764). Cr. 3 (Max. 9)

Prereq: ANT 531 or consent of instructor. Central concepts and theories. Current developments, problems and contemporary research orientations. Topics to be announced in *Schedule of Classes*.

766. Seminar in Urban Anthropology. Cr. 3 (Max. 9)

Prereq: ANT 506 or consent of instructor. Identification and evaluation of urban problems. Topics to be announced in *Schedule of Classes*.

767. Seminar in Field Studies. Cr. 3 (Max. 9)

Prereq: consent of instructor. Methods and problems in anthropological field work. Students will complete a field study on a selected topic.

768. Seminar in Medical Anthropology. Cr. 3 (Max. 6)

Prereq: consent of instructor. Interrelations of environmental, biological, and cultural factors in human adaptation; the cultural ecology of health and disease; cross-cultural perspectives on medical beliefs and practices; medical care systems of Western and non-Western peoples.

779. Seminar in Development of Theory. Cr. 3 (Max. 12)

Prereq: consent of instructor. Growth of ethnology, differentiation, leading points of view regarding problems and subject matter. Evolutionists, historical schools, functionalists, advocates of culture

and personality approaches.

790. (ANA 790) Directed Study in Physical Anthropology.
Cr. 1-8(Max. 8)

Prereq: written consent of adviser and graduate officer.

791. Directed Study in Linguistics. (LIN 791). Cr. 1-9(Max. 9)
Prereq: written consent of adviser and 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.

792. Directed Study in Archaeology. Cr. 1-9(Max. 9)
Prereq: written consent of adviser and 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.

793. Directed Study in Cultural Anthropology. Cr. 1-9(Max. 9)
Prereq: written consent of adviser and 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.

794. Directed Study. Cr. 1-9(Max. 9)
Prereq: written consent of adviser and graduate officer.

795. Directed Study. Cr. 1-9(Max. 9)
Prereq: written consent of adviser and graduate officer.

796. Field Problem. Cr. 1-9(Max. 9)
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.

899. Master's Thesis Research and Direction. Cr. 1-8(8 req.)
Prereq: consent of adviser.

999. Doctoral Dissertation Research and Direction.
Cr. 1-16(30 req.)
Prereq: consent of doctoral adviser. Offered for S and U grades only.

Swahili (SWA)

215. 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.

216. Elementary Swahili II. Cr. 4
Prereq: SWA 215. Foreign language credit only. Continuation of SWA 215.

217. Intermediate Swahili. Cr. 4
Prereq: SWA 216. Foreign language credit only. Conversational Swahili and grammar review; reading of Swahili literature. Continuation of SWA 216.

220. Swahili Literature and Composition. Cr. 4
Prereq: SWA 217 or equiv. Course conducted in Swahili. Reading and discussion of traditional and modern writings in Swahili to increase oral and written command.

ART AND ART HISTORY

Office: 450 West Kirby

Acting Chairperson: Richard J. Bilaitis

Professors

William A. Allen, Wayne Andrews, David H. Becker, Wilfred C. Becker, Mary Jane Bigler (Emeritus), Robert Broner, Wayne Claxton (Emeritus), Olga Constantine, John D. Egner, Phillip G. Fike, Peter J. Gilleran, Bernard M. Goldman, Joseph Gutman, David A. Mitchell, Louise J. Nobili, William E. Pitney (Emeritus), Patricia A. Quinlan, Ernst Scheyer (Emeritus), G. Alden Smith (Emeritus), Robert J. Wilbert, William T. Woodward (Emeritus)

Associate Professors

Richard J. Bilaitis, Thomas P. Fitzgerald, John G. Hegarty, John C. Mills, James E. Nawara, Thomas Parish, Stanley L. Rosenthal, Horst Uhr

Assistant Professors

Michael L. Browne, Alison L. Hilton, Urban R. Jupena, Helga Kahl, Elizabeth Lipsmeyer, James M. Raymo, Melvin Rosas, Joseph B. Zajac, Marilyn Zimmerman

Adjunct Professors

Dennis R. Barrie, Jay Belloli, Fred Cummings, Linda Downs, John D. Hilberry, Michael Kan, Richard R. Kinney, William Peck, David Penney, Ellen Sharp

Degree Programs

Bachelor of Arts—with a major in art or art history.

Bachelor of Fine Arts—with a major in art and a 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 a specialization 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 history.

Master of Fine Arts—with a major in art and specialization in one of the following: Ceramics, Design, Drawing, Fibers, Metalsmithing, Painting, Photography, Printmaking, or Sculpture.

The courses in art are designed to provide a broad understanding and the opportunity for full experiences in the visual arts. A cooperative agreement between the Department and the Detroit Institute of Arts provides the students with 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 such work in University publications.

Undergraduate Majors in the studio areas of the Department of Art and Art History may elect to work for either of two degrees: Bachelor of Arts or Bachelor of Fine Arts.

Minors in Art and Art History

STUDIO ART: A minor in studio art will be granted upon completion of A H 111 or 112 and twenty-seven credits of studio art courses, including ART 105, 106, 120, and 121, and fifteen credits at the 200 level or above.

ART HISTORY: A minor in art history will be granted upon the completion of twenty-one credits of art history courses, including A H 111 and 112, and fifteen credits at the 200 level or above.

Transfer Students in studio arts must present portfolios of their art work. If accepted on the basis of portfolio evaluation and transcripts, students must complete a minimum of twenty-seven resident credits in art courses for either the B.A. or B.F.A. degree.

Core Requirements for Studio Art Majors: All students working for a B.A. or B.F.A. in one of the studio areas must complete (or have the equivalent of) the Core program in Art. Classes which must be taken prior to any other studio classes are:

ART 105.....	Drawing I
ART 106.....	Drawing II
ART 120.....	Design I
ART 121.....	Design II
A H 111.....	Paleolithic Through Gothic Art Survey
A H 112.....	Renaissance Through Modern Art Survey

As a part of the total requirements for a bachelor's degree in a studio area, students are also required to take one class, not in their major area of concentration, from each of the following categories:

1. Printmaking or Photography
2. Drawing or Painting
3. Sculpture, Ceramics, Metal Arts, Fibers or Three Dimensional Design
4. Art History elective (200 level or above)
5. Advanced Art History (300 level or above)

Bachelor of Arts in Art

Major Requirements: Forty-two to forty-eight credits must be elected in Art, including the core listed above. For specific requirements, consult the Art Department.

Bachelor of Arts in Art History

Major Requirements: Students must complete a minimum of thirty-three credits in Art History, to include six credits in the basic surveys (A H 111, 112), three credits from the non-western surveys (A H 280, 282, 286, 287) and at least twenty-four credits in advanced level courses, of which a minimum of fifteen credits must be at the 500 level or above. These courses should be selected to ensure exposure to the major periods and areas: ancient, medieval, renaissance-baroque, nineteenth and twentieth centuries, Oriental and ethnographic. It is recommended that students who intend to pursue graduate work in Art History elect A H 509. In addition to the Art History course work, majors must complete at least two years of college-level study in one foreign language (a minimum of four semester courses; German and

French are preferred).

Bachelor of Fine Arts

Curriculum and Major Requirements: Sixty-three to eighty-one credits must be elected in art, including the Core program. The student has the option to omit either the foreign language OR the science requirement, but all other group requirements must be met. Curriculum outlines for the following fields of concentration are available in the Art Department office:

- | | |
|-----------------------|--------------------------|
| a. Advertising Design | g. Interior Architecture |
| b. Ceramics | h. Metal Arts |
| c. Design | i. Painting |
| d. Drawing | j. Photography |
| e. Fibers | k. Printmaking |
| f. Industrial Design | l. Sculpture |

Requirements for the B.F.A. include a minimum of eighteen hours in one of the specializations listed at the 500 level or above. Since requirements vary for each area, students are responsible for meeting program requirements as outlined in curriculum guides available in the Art Department office.

Specialization requirements for the B.F.A. degree may also be met by combining a minimum of twenty-four credits at the 500 level or above in two of the above areas.

Master of Arts in Art

Plan B: Thirty-two credits in course work, including 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 graduate committee or the area coordinator must approve the undergraduate preparation and scholarship, and verify the applicant's potential for graduate study.

Candidacy must be established by the time fifteen credits have been earned.

Degree Requirements: Each candidate is expected to work toward a goal by means of a definite plan, approved by the student's graduate review committee or adviser. Course work must include five or six credits of art history.

Master of Arts in Art History

Plan A: Thirty-two credits in course work, including at least six credits on the 700 level and eight credits of thesis.

Plan B: Thirty-three credits of course work, including at least six credits on the 700 level and three credits of essay.

Admission: The applicant must have an undergraduate or equivalent degree in art history, a minimum B average in undergraduate art history, and two years of college-level work in one foreign language (a minimum of four semester courses, German and French are preferred).

Candidacy must be established by the time fifteen credits have been earned.

Degree Requirements: Students with a broad undergraduate art history background are 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 before the essay or thesis topic can be approved by the adviser.

Certificate Program in Museum Practice

Students who have earned the M.A. in art history, or in a related field with a concentration of work in art history, may elect to earn a Certificate in Museum Practice.

Requirements: Thirty credits of course work, to be divided among six credits of museum related courses (A H 695, 789) and twenty-four credits of internship credits (A H 788) at the Detroit Institute of Arts.

Admission: Regular admission to the Graduate School of the University and the Department of Art and Art History is required. Applicants must have a master's degree in art history, or in a related area with a concentration of work in art history, and a reading knowledge of two foreign languages (German and French are preferred). They also must have passed the departmental comprehensive slide examination. Candidates will be selected by the Director of the Museum Practices Program at Wayne State University and the Co-Director of the program in the Department of Education at the Detroit Institute of Arts in consultation with the Art History faculty at the University and the curatorial staff of the Detroit Institute of Arts. Admission will be considered only after interviews with the Director and Co-Director of the program; the approval of both is necessary for admission. The Certificate program is a twelve-month program, beginning in the fall semester of each academic year. No admission to the program is made at any other time of the year.

Master of Fine Arts in Art

Plan B: Sixty credits in art, including an essay.

Plan C: Sixty credits in art, including a specific project determined by the candidate's area of specialization.

Admission: Applicants who present a superior portfolio and hold a Bachelor of Fine Arts degree or a Master of Arts degree in Art may apply for direct admission.

During the semester in which an applicant in the Master of Arts in Art program will be completing a minimum of fifteen credits hours, the student may be invited to apply for admission to the Master of Fine Arts program. If accepted, the applicant's fifteen credits of graduate study will apply toward the Master of Fine Arts Degree.

In either case, the M.F.A. degree program demands superior qualification, potential, and commitment as an artist.

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 adviser. An applicant becomes a degree candidate only upon recommendation by the graduate review committee.

Degree Requirements: A minimum of sixty credits in art should include at least thirty-six credits in the studio major, nine credits of electives, twelve credits in art history, and three credits in the M.F.A. Seminar.

Full-time attendance is required in the program which generally requires four semesters of study, excluding the summer term. All M.F.A. candidates must also meet the following requirements:

1. A satisfactory review of the candidate's work.
2. An exhibition of the work produced for M.F.A. credit.
3. Submission for departmental files of twelve or more photographs or slides of the work accompanied by a brief, relevant, written statement.

This program provides the student with the opportunity for intensive work toward personal artistic goals. The entire graduate staff is available to the student for consultation and instruction.

COURSES OF INSTRUCTION¹

Art (ART)

Courses whose credit is marked with an asterisk may be elected for additional credits (not exceeding the allowable maximum) in a given semester with written consent of instructor.

100. Studio Art for Non-Majors. Cr. 3

Basic studio experiences in one of the art media. Area of concentration to be announced in *Schedule of Classes*.

105. Drawing I. Cr. 3

Introductory training in basic drawing skills: inanimate subject matter; perspective and composition, wet and dry media.

106. Drawing II. Cr. 3

Prereq: ART 105. Experimental problems to encourage individual responses to subject matter. More complex drawing media and limited color. Studies of head emphasizing structure.

120. Design I. Cr. 3

Foundation course for all visual communication. Two- and three-dimensional experimentation in various techniques with achromatic media.

121. Design II. Cr. 3

Prereq: ART 120. Continuation of ART 120 with concentration on color theories and phenomena. Two- and three-dimensional concepts of structure with an emphasis on color.

206. Studio Drawing. Cr. 3

Prereq: ART 106. Development of personal imagery and concepts. Self-direction encouraged in choice of subject matter, media and approach.

207. Beginning Life Drawing. Cr. 3

Prereq: ART 106. Material fee as indicated in *Schedule of Classes*. Graphic exploration of essential aspects of the human figure including structure, gesture, form and accuracy. Limited media employed.

210. Basic Painting. Cr. 3

Prereq: ART 106 and 121. Introduction to oil, water color, gouache, acrylic and encaustic media, tools and surface preparation. Form-observation and translation; inquiry into pictorial concerns.

211. Beginning Painting: Water Media. Cr. 3

Prereq: ART 210. Exploration of aqueous media, transparent and opaque. Legacy, content and contemporary issues concerning water-based media. Simple problems of form translation using still life, nature, and/or abstraction.

212. Beginning Painting: Oil. Cr. 3

Prereq: ART 210. Exploration within media choices with emphasis on the structure of a painting and individual development. Still life, nature and/or abstraction.

215. Introduction to Sculpture. Cr. 3

Prereq: ART 106, 121. Material fee as indicated in *Schedule of Classes*. Sculptural forms using traditional and contemporary materials and techniques in problems involving figurative and non-figurative and environment space problems.

220. Design III: Three Dimensional. Cr. 3

Prereq: ART 121. Material fee as indicated in *Schedule of Classes*. Elementary and advanced spatial constructions using a variety of tools,

¹ See page 633 for interpretation of numbering system, signs and abbreviations

materials and machines. Relationships to other art forms and fields are stressed through lectures and discussions.

225. Advertising Design I. Cr. 3

Prereq: ART 106 and 121. Introduction to lettering, type and commercial graphic processes. Development of layout concepts, drawing, design, photostat and proof press usage.

231. Architectural Drafting. Cr. 3

Prereq: ART 106. Introduction to the basic studio tools and techniques of the architectural profession. Basic architectural drafting and dimensioning, linework and lettering.

235. Perspective Drawing. Cr. 3

Prereq: ART 106, 231 or equiv. Mechanical construction of one- and two-point perspective chart and other sketch methods.

240. Introductory Photography. Cr. 3

Lectures, demonstrations, projects involving basic camera techniques using color slides.

241. Beginning Photography. Cr. 3

Prereq: ART 240. Material fee as indicated in *Schedule of Classes*. Film processing, printing and presentation in black and white medium. Introduction to basic photographic vocabulary through problem-solving approach. Demonstrations and group techniques.

251. Relief and Collagraph Printmaking. Cr. 3

Prereq: ART 106 and 121. Material fee as indicated in *Schedule of Classes*. Traditional relief methods: woodcut, wood engraving, linocut and basic techniques of collage printmaking.

255. Ceramics and Pottery Design I. Cr. 3

Material fee as indicated in *Schedule of Classes*. Introduction to basic clay-forming techniques including slab, coil, wheel throwing, and glazing. Primarily for non-art majors.

256. Ceramics and Pottery Design II. Cr. 3

Prereq: ART 255. Material fee as indicated in *Schedule of Classes*. Continuation of ART 255. Further development of basic clay techniques.

260. Metal Arts and Jewelry Design. Cr. 3

Prereq: ART 106 and 121 for art majors. Material fee as indicated in *Schedule of Classes*. Fundamentals of metal forming processes: fabrication and repousse. Lectures on technical, historical and contemporary information, twentieth century conceptual ideas.

265. Beginning Weaving. Cr. 3

Prereq: ART 121 and 106. Material fee as indicated in *Schedule of Classes*. Weaving techniques on a frame loom. Design concepts through application of tapestry, flossa, sumac, inlay and wrapping process.

266. Introduction to Fibers. Cr. 3(Max. 6)

Material fee as indicated in *Schedule of Classes*. Emphasis on color, design and composition. Natural and chemical dyeing, block printing, resist methods, soft sculpture, basketry.

269. Papermaking. Cr. 3

Prereq: ART 106 and 121. Material fee as indicated in *Schedule of Classes*. Introduction to hand-made paper. Basic techniques of both sheet and free-formed paper.

307. Intermediate Life Drawing. Cr. 3

Prereq: ART 207. Material fee as indicated in *Schedule of Classes*. Continued systematic study of the human figure stressing more complex problems. Introduction of a broader range of media.

308. Still Life and Landscape Drawing. Cr. 3

Prereq: ART 207 or 206. Exploration of still life and landscape

subject matter through observation and imagination using various media. Studio work and field trips.

309. Anatomy. Cr. 3

Prereq: ART 207. Material fee as indicated in *Schedule of Classes*. Drawing the human anatomy through studies of visual structural form; the skeletal and muscular systems and superficial characteristics.

311. Intermediate Painting: Water Media. Cr. 3

Prereq: ART 211. Continuation of ART 211 with emphasis on the investigation of pictorial space. Emotional and/or conceptual solutions to expression. Further work in aqueous media relative to individual needs.

312. Intermediate Painting: Oil and Other Media. Cr. 3

Prereq: ART 212. Continuation of ART 212 with emphasis on the structure of a painting and different attitudes of pictorial space. Emotional and/or conceptual solutions to paintings. Individual development encouraged.

313. Figure Painting: Water Media. Cr. 3

Prereq: ART 211. Material fee as indicated in *Schedule of Classes*. Spontaneous and sustained paintings from direct observation of the human figure. Inquiry into the effects of scale, space and emotional responses are encouraged.

314. Figure Painting: Oil and Other Media. Cr. 3

Prereq: ART 212. Material fee as indicated in *Schedule of Classes*. Sustained studies in oil, acrylic or other media from direct observation of the human figure. Inquiry into the effects of scale. Pictorial space and emotional responses are encouraged.

316. Intermediate Sculpture: Non-Figurative. Cr. 3

Prereq: ART 215. Material fee as indicated in *Schedule of Classes*. Emphasis on non-figurative forms employing wider range of techniques: welding, foundry and plastics.

317. Intermediate Sculpture: Figurative. Cr. 3

Prereq: ART 215. Material fee as indicated in *Schedule of Classes*. Problems in figurative sculpture using traditional and contemporary spatial and expressive concepts. Foundry, welding, plastics and mold-making.

320. Applied Design Projects. Cr. 3

Prereq: ART 121. Language, techniques and concepts of environmental design.

325. Intermediate Advertising Design. Cr. 3

Prereq: ART 225. Layout development and introduction to camera-ready design procedures. Essential concepts of commercial graphic design techniques.

330. Introduction to Industrial Design. Cr. 3*(Max.9)

Prereq: ART 220, 331 or consent of instructor. Material fee as indicated in *Schedule of Classes*. Introduction to fundamental design methodology through problems involving two-dimensional presentation and three-dimensional form studies.

331. Basic Presentation. Cr. 3*(Max. 9)

Prereq: ART 106. Material fee as indicated in *Schedule of Classes*. Fundamentals of free-hand perspective drawing. Achromatic sketches with emphasis on cast shadows and value studies. Introduction of color sketches during the second term.

340. The Evolution of Photographic Concepts and Processes. Cr. 3

Survey of photography from invention to contemporary times. Significant trends and developments in the medium as revealed in the work of major photographers.

341. Intermediate Photography. Cr. 3

Prereq: ART 241. Material fee as indicated in *Schedule of Classes*. Further refinement of basic skills and concepts. More advanced techniques. Use of the camera's manipulative mechanisms. Emphasis on image and idea.

348. Beginning Intaglio Printmaking. Cr. 3*(Max. 6)

Prereq: ART 106 and 121. Material fee as indicated in *Schedule of Classes*. Basic metal plate techniques: etching, aquatint, engraving, drypoint, soft ground, lift ground.

349. Beginning Lithography. Cr. 3*(Max. 6)

Prereq: ART 106 and 121. Material fee as indicated in *Schedule of Classes*. Fundamentals of stone and plate lithography. Black and white prints made.

350. Beginning Serigraphy. Cr. 3

Prereq: ART 106 and 212. Material fee as indicated in *Schedule of Classes*. Introduction to basic techniques of screen printing.

351. Advanced Relief/Collograph Printmaking. Cr. 3*(Max. 15)

Prereq: ART 251. Material fee as indicated in *Schedule of Classes*. Advanced problems in relief or collograph. Media and course content offered on alternating schedule by terms.

355. Beginning Ceramics. Cr. 3

Prereq: ART 106 and 121. Open only to art majors. Material fee as indicated in *Schedule of Classes*. Experiences in basic techniques, processes and ideas fundamental to the ceramic medium.

360. Intermediate Metal Arts and Jewelry Design. Cr. 3

Prereq: ART 260. Material fee as indicated in *Schedule of Classes*. Raising, stretching and forging and small form investment casting. Application of theory, principles and graphic techniques essential to creative design in metals.

364. Elementary Forge Practice. Cr. 3

Prereq: ART 106 and 320. Material fee as indicated in *Schedule of Classes*. Fundamentals of iron work (blacksmithing) with coal forge and hand tools.

365. Intermediate Weaving. Cr. 3*(Max. 12)

Prereq: ART 265. Material fee as indicated in *Schedule of Classes*. Designs done on four- and eight-harness looms. Pattern drafting, layer weaving, ikat, and rug techniques offered on a rotating basis.

366. Intermediate Fibers. Cr. 3*(Max. 12)

Prereq: ART 266. Material fee as indicated in *Schedule of Classes*. Concentration in one of the following areas: soft sculpture, fabric printing, dyeing, resist methods. Topics to be announced in *Schedule of Classes*.

367. Historical Study of Textiles and Techniques. Cr. 3
Lecture and demonstration.

435. Interior Architecture: Design Introduction. Cr. 3*(Max. 12)

Prereq: ART 220, 231, 235 or consent of instructor for art majors; 220, FAC 263 for FAC students. Step-by-step process for design of complex interior human environments. All aspects from programming through furniture selection. Lectures, studio, jury presentation.

436. Interior Construction: Materials and Systems. Cr. 3

Manufactured architectural components: partitions, ceilings, cabinets, furniture systems, accessories and equipment; specification writing.

437. Interior Lighting Design. Cr. 3

Light sources, fixtures, selection and application in architectural interiors; energy efficiency, comfort, basic calculations.

441. Advanced Photography. Cr. 3

Prereq: ART 341. Material fee as indicated in *Schedule of Classes*. Individual projects using advanced methods and techniques. In-depth photographic investigations exploring the possibilities of personal expression.

442. Photography: Basic Studio Techniques. Cr. 3

Open only to photography majors. Material fee as indicated in *Schedule of Classes*. Basic view camera techniques. Sheet film processing and printing. Studio lighting techniques.

443. Color Photography. Cr. 3

Prereq: ART 341. Material fee as indicated in *Schedule of Classes*. Color film processing and printing. Basic color theory and use of filtration. Class projects and group techniques.

455. Intermediate Ceramics. Cr. 3

Prereq: ART 355. Material fee as indicated in *Schedule of Classes*. Advanced building techniques; glaze and clay body calculation, mold-making and aesthetic evaluation.

500. Foreign Study in Studio Art. Cr. 6-9*

Prereq: consent of instructor. Studio art offered in a specific geographic area. New perceptive experiences within the cultural environment of a foreign country combined with studio disciplines.

506. Advanced Drawing. Cr. 3*(Max. 15)

Prereq: ART 306. Continuation of ART 306. Emphasis on individual direction and development in various media.

507. Advanced Life Drawing. Cr. 3*(Max. 24)

Prereq: ART 307. Material fee as indicated in *Schedule of Classes*. Continued study of graphic translation of the human figure. Individual directions and variety of problems encouraged. More complex subject matter, scale and composition.

510. Painting Seminar. Cr. 3*(Max. 6)

Philosophical and analytical inquiry into painting issues, past and present. Current values in art criticism and practice. Visits to studios, museums, galleries and private collections.

511. Advanced Painting: Water Media. Cr. 3*(Max. 18)

Prereq: ART 311. Continuation of ART 311.

512. Advanced Painting: Oil and Other Media. Cr. 3*(Max. 18)

Prereq: ART 312. Continuation of ART 312.

513. Figure Painting Advanced: Water Media. Cr. 3*(Max. 12)

Prereq: ART 313. Material fee as indicated in *Schedule of Classes*. Continuation of ART 313.

514. Figure Painting Advanced: Oil and Other Media. Cr. 3*(Max. 12)

Prereq: ART 314. Material fee as indicated in *Schedule of Classes*. Continuation of ART 314.

516. Advanced Sculpture: Non-Figurative. Cr. 3*(Max. 18)

Prereq: ART 316. Material fee as indicated in *Schedule of Classes*. Continuation of ART 316. Emphasis on advanced and self-directed problems in non-figurative sculpture.

517. Advanced Sculpture: Figurative. Cr. 3*(Max. 18)

Prereq: ART 309 and 317. Material fee as indicated in *Schedule of Classes*. Emphasis on advanced and self-directed problems in figurative sculpture.

518. Sculpture: Advanced Technology. Cr. 3*(Max. 18)

Prereq: ART 516 or 517. Material fee as indicated in *Schedule of Classes*. One major project which explores the application of non-traditional materials and technologies: research, industrial liaisons, equipment.

- 520. Advanced Design. Cr. 3*(Max. 6)**
Prereq: ART 106 and 121. Material fee as indicated in *Schedule of Classes*. Advanced problems in chromatic media to broaden and deepen the understanding of color as a structural component in the visual arts.
- 521. Experimental Art Processes. Cr. 3*(Max. 6)**
Prereq: ART 320. Material fee as indicated in *Schedule of Classes*. Advanced study in two- and three-dimensional structure with emphasis on multi-media. Development of individual projects which extends the student's conceptual vocabulary.
- 522. Art Processes. Cr. 3*(Max. 6)**
Prereq: ART 121 and ART 220. Studio course techniques not otherwise available in regular course offerings. Process to be announced in *Schedule of Classes*.
- 525. Advanced Advertising Design. Cr. 3*(Max. 18)**
Prereq: ART 325. Material fee as indicated in *Schedule of Classes*. Advanced projects, layout practice, introduction to view camera used in layout, commercial graphic films. Term project development. Commercial illustration.
- 526. Advertising Design: Senior Project. Cr. 3*(Max. 12)**
Prereq: ART 525. Material fee as indicated in *Schedule of Classes*. Comprehensive research project involving complete development from sketches to finished art work.
- 527. Advertising Design: Portfolio Preparation. Cr. 3**
Prereq. or coreq: ART 525. Undergraduate credit only. Material fee as indicated in *Schedule of Classes*. Refinement and preparation of portfolio for job interviews. Various media and forms of presentation.
- 530. Industrial Design. Cr. 3*(Max. 12)**
Prereq: ART 330. Material fee as indicated in *Schedule of Classes*. Product design problems with emphasis on workability and form design. Sketches and three-dimensional models.
- 531. Advanced Presentation. Cr. 3*(Max. 18)**
Prereq: ART 331. Material fee as indicated in *Schedule of Classes*. Professional techniques in wet and dry media. Full size tape drawings and renderings. Sketch techniques in black and white and color.
- 532. Industrial Design: Senior Project. Cr. 3*(Max. 9)**
Prereq: ART 530. Material fee as indicated in *Schedule of Classes*. Two semesters of work on a major project of the student's choosing; research and final presentation including all aspects of the problem from the concept to the final full-scale model.
- 534. Industrial Design: Portfolio Presentation. Cr. 3**
Prereq: ART 530, 532 and consent of instructor. Undergraduate credit only. Refinement and preparation of portfolio for job interviews. Various media and forms of presentation.
- 535. Interior Architecture: Adaptive Use. Cr. 3*(Max. 6)**
Prereq: ART 435. Material fee as indicated in *Schedule of Classes*. Imaginative re-design of existing buildings for new uses: measured drawings, plans, building sections.
- 536. Survey of Construction Technology. Cr. 3**
Introduction to modern structural, air conditioning, plumbing, electrical and acoustical engineering principles as applied to architectural interiors. Designer-engineer relationships.
- 537. Environment as an Art Form. Cr. 3*(Max. 6)**
Open only to senior and graduate art and FAC students. Design of interior spaces as sculpture and painting. Emphasis on form, color, light, proportion and emotional impact. Sketches, models, model photography.
- 538. Interior Architecture: Construction Drawings. Cr. 3*(Max. 6)**
Prereq: ART 435, 436, 437. Material fee as indicated in *Schedule of Classes*. Preparation of detailed architectural working drawings for interior spaces.
- 542. Advanced Photographic Studio Techniques. Cr. 3*(Max. 9)**
Prereq: ART 442. Material fee as indicated in *Schedule of Classes*. Refinement of view camera techniques and advanced lighting techniques. Projects include advertising, architectural, industrial and fashion photography. Preparation of a professional portfolio.
- 543. Advanced Color Photography. Cr. 3*(Max. 9)**
Prereq: ART 443. Material fee as indicated in *Schedule of Classes*. Use of color as an expressive medium through a variety of color materials and lighting situations, and non-traditional use of color materials.
- 544. Experimental Photography. Cr. 3*(Max. 9)**
Prereq: ART 441. Material fee as indicated in *Schedule of Classes*. Examination of various historic processes and their contemporary applications: Cyanotype, Gum-Bichromate, and Van Dyke Brown printing, toners, and hand-applied emulsions.
- 545. Selected Topics in Photography. Cr. 3*(Max. 9)**
Prereq: ART 441. Topics to be announced in *Schedule of Classes*.
- 546. Photography Seminar. Cr. 3*(Max. 9)**
Prereq: consent of adviser. Independent work in advanced photography discussed in seminar format. Emphasis on major ideational concerns and execution and development of a critical vocabulary.
- 548. Advanced Intaglio Printmaking. Cr. 3*(Max. 21)**
Prereq: ART 348. Material fee as indicated in *Schedule of Classes*. Advanced problems in intaglio. Multiplate and rollup color printing. Photo intaglio techniques, experimental media.
- 549. Advanced Lithography. Cr. 3*(Max. 21)**
Prereq: ART 349. Material fee as indicated in *Schedule of Classes*. Advanced problems in lithography. Black and white, multicolor, transfer methods.
- 550. Advanced Serigraphy. Cr. 3*(Max. 15)**
Prereq: ART 350. Material fee as indicated in *Schedule of Classes*. Advanced problems in screen printing. Photo transfer, multi-media approaches.
- 551. Experimental Printmaking. Cr. 3*(Max. 21)**
Prereq: ART 350 or 549. Material fee as indicated in *Schedule of Classes*. Specialized problems involving experimental use of various print media and technologies; relief, collagraph, intaglio.
- 552. Cliche Verre Printmaking. Cr. 3*(Max. 15)**
Material fee as indicated in *Schedule of Classes*. Image making with light. Traditional and experimental use of light-sensitive materials to produce black and white and color hand-made images.
- 553. The Handmade Book. Cr. 3**
Material fee as indicated in *Schedule of Classes*. Introduction to the fundamentals of the handmade book: binding, paper selection, typesetting, construction. Designing and producing handmade books incorporating original artwork. Exploring various types of book design.
- 554. Seminar in Printmaking. Cr. 3*(Max. 9)**
Prereq: any 500-level course in printmaking. Introduction to the professional printmaking activities. Lectures and field trips to publishing workshops, museums and galleries.

555. Advanced Ceramics. Cr. 3*(Max. 12)

Prereq: ART 355. Open only to art majors in ceramics. Material fee as indicated in *Schedule of Classes*. Individual research including kiln building, firing and studio management. Individual philosophy and group critiques emphasized.

556. Ceramics: Senior Project. Cr. 3*(Max. 12)

Material fee as indicated in *Schedule of Classes*. Independent course study including presentation and exhibition techniques, portfolio design and artistic expression. Portfolio and resume submission are mandatory before course completion.

560. Advanced Metal Arts and Jewelry Design. Cr. 3*(Max. 24)

Prereq: ART 360. Material fee as indicated in *Schedule of Classes*. Comprehensive project development on an individual basis. Workshops in specialty areas.

564. Advanced Forge Technique and Ironwork. Cr. 3*(Max. 9)

Prereq: ART 364. Material fee as indicated in *Schedule of Classes*. Design and manufacture of ornamental and sculptural projects in iron and other structural/decorative materials.

565. Weaving: Senior Project. Cr. 3*(Max. 12)

Prereq: ART 365. Material fee as indicated in *Schedule of Classes*. Directed project in weaving. Research and written evaluative statement required.

566. Fibers: Senior Project. Cr. 3*(Max. 12)

Prereq: ART 366. Material fee as indicated in *Schedule of Classes*. Extensive project or series of work determined by student; research and written statement.

569. Advanced Papermaking. Cr. 3*(Max. 9)

Prereq: ART 269. Material fee as indicated in *Schedule of Classes*. Advanced problems involving coloring, sheet making, sizing and sculptural use of the medium.

580. Directed Projects: Drawing. Cr. 3*(Undergrad. max. 15; grad. max. 30)

Prereq: undergrad., consent of major adviser and chairperson; grad., consent of adviser and graduate officer. Individual problems.

581. Directed Projects: Painting. Cr. 3*(Undergrad. max. 15; grad. max. 30)

Prereq: undergrad., consent of major adviser and chairperson; grad., consent of adviser and graduate officer. Individual problems.

582. Directed Projects: Sculpture. Cr. 3*(Undergrad. max. 15; grad. max. 30)

Prereq: undergrad., consent of major adviser and chairperson; grad., consent of adviser and graduate officer. Individual problems.

583. Directed Projects: Design. Cr. 3*(Undergrad. max. 15; grad. max. 30)

Prereq: undergrad., consent of major adviser and chairperson; grad., consent of adviser and graduate officer. Individual problems.

584. Directed Projects: Printmaking. Cr. 3*(Undergrad. max. 15; grad. max. 30)

Prereq: undergrad., consent of adviser and chairperson; grad., consent of adviser and graduate officer. Individual problems.

585. Directed Projects: Photography. Cr. 3*(Undergrad. max. 15; grad. max. 30)

Prereq: undergrad., consent of major adviser and chairperson; grad., consent of adviser and graduate officer. Individual problems.

586. Directed Projects: Metal Arts. Cr. 3*(Undergrad. max. 15; grad. max. 30)

Prereq: undergrad., consent of major adviser and chairperson; grad.,

consent of adviser and graduate officer. Individual problems.

587. Directed Projects: Fibers. Cr. 3*(Undergrad. max. 15; grad. max. 30)

Prereq: undergrad., consent of major adviser and chairperson; grad., consent of adviser and graduate officer. Individual problems.

588. Directed Projects: Ceramics. Cr. 3*(Undergrad. max. 15; grad. max. 30)

Prereq: undergrad., consent of major adviser and chairperson; grad., consent of adviser and graduate officer. Individual problems.

589. Directed Projects: Advertising Design. Cr. 3*(Undergrad. max. 15; grad. max. 30)

Prereq: undergrad., consent of major adviser and chairperson; grad., consent of adviser and graduate officer. Individual problems.

590. Directed Projects: Industrial Design. Cr. 3*

Prereq: undergrad., consent of major adviser and chairperson grad., consent of adviser and graduate officer. Individual problems.

591. Directed Projects: Interior Architecture. Cr. 3*

Prereq: undergrad., consent of major adviser and chairperson; grad., consent of adviser and graduate officer. Individual problems.

616. Non-Figurative Sculpture. Cr. 3-6*(Max. 18)

Prereq: ART 516. Open only to sculpture majors. Material fee as indicated in *Schedule of Classes*. Continuation of ART 516. Expansion of concepts and expressive form. Emphasis on photofolio of work and professional plans.

617. Figurative Sculpture. Cr. 3-6*(Max. 18)

Prereq: ART 517 and 518. Open only to sculpture majors. Material fee as indicated in *Schedule of Classes*. Continuation of ART 517. Emphasis on concepts and expressive form, portfolio of work and professional plans.

619. Selected Problems in Sculptural Concepts. Cr. 3-6 (Max. 18)

Prereq. or coreq: ART 616 or 617. Open only to seniors and graduate students. Material fee as indicated in *Schedule of Classes*. Content varies each term, focusing on one aspect of spatial concepts and forms. Primarily for sculpture majors; open to any senior or graduate art student with consent of adviser.

630. Transportation Design. Cr. 3*(Max. 18)

Prereq: ART 330. Material fee as indicated in *Schedule of Classes*. Materials fee announced in *Schedule of Classes*. Form and proportion investigations of various transportation systems. Repetition of course allows a more comprehensive development of a particular project.

632. History of Industrial Design I. Cr. 3

Main stylistic movements in Europe and America, as they relate to industrial design during the last half of the 19th century.

633. History of Industrial Design II. Cr. 3

Main stylistic movements in Europe and America as they relate to industrial design in the 20th century.

635. Interior Architecture: Senior Projects. Cr. 3*(Max. 12)

Prereq: consent of instructor. Complete interior architectural solution to problem chosen by student.

654. The Print Process: History and Technology. Cr. 3

Prereq: any 500 level art course. History and development of the various print media. Lecture and demonstration.

706. Graduate Problems in Drawing. Cr. 3*(Max. 24)

Prereq: ART 506. Advanced work in non-figurative drawing. Studio and criticism.

- 707. Graduate Life Drawing. Cr. 3*. (Max. 24)**
Prereq: ART 507. Material fee as indicated in *Schedule of Classes*. Advanced problems in drawing the human figure. Individual concepts and choice of medium.
- 711. Graduate Problems in Painting: Water Media. Cr. 3*. (Max. 18)**
Prereq: ART 511. Advanced problems in painting.
- 712. Graduate Problems in Painting: Oil Medium. Cr. 3*. (Max. 18)**
Prereq: ART 512. Advanced problems in painting.
- 713. Graduate Problems in Figure Painting: Water Medium. Cr. 3*. (Max. 18)**
Prereq: ART 513. Material fee as indicated in *Schedule of Classes*. Advanced problems in painting the human figure.
- 714. Graduate Problems in Figure Painting: Oil Medium. Cr. 3*. (Max. 18)**
Prereq: ART 514. Material fee as indicated in *Schedule of Classes*. Advanced problems in painting the human figure.
- 716. Graduate Problems in Non-Figurative Sculpture. Cr. 3-6*. (Max. 18)**
Prereq: ART 516 or equiv. Material fee as indicated in *Schedule of Classes*. Self-directed problems. Emphasis on graduate study and exhibition awareness.
- 717. Graduate Problems in Figurative Sculpture. Cr. 3-6*. (Max. 18)**
Prereq: ART 617 or equiv. Material fee as indicated in *Schedule of Classes*. Self-directed problems. Emphasis on graduate study and exhibition awareness.
- 720. Graduate Problems in Design. Cr. 3*. (Max. 12)**
Prereq: ART 520. Material fee as indicated in *Schedule of Classes*.
- 721. Graduate Problems in Experimental Art Processes. Cr. 3*. (Max. 12)**
Prereq: ART 521. Material fee as indicated in *Schedule of Classes*.
- 722. Graduate Problems in Art Processes. Cr. 3*. (Max. 12)**
Prereq: ART 522. Material fee as indicated in *Schedule of Classes*.
- 725. Graduate Problems in Advertising Design. Cr. 3*. (Max. 24)**
Prereq: ART 525. Material fee as indicated in *Schedule of Classes*. Individual problems in advanced advertising design.
- 730. Graduate Industrial Design. Cr. 3*. (Max. 24)**
Prereq: ART 530 or 630. Material fee as indicated in *Schedule of Classes*. Individual problems in industrial design.
- 735. Graduate Interior Architecture. Cr. 3*. (Max. 24)**
Prereq: ART 635. Individual problems in interior architecture.
- 740. Graduate Photography. Cr. 3*. (Max. 24)**
Individual problems in advanced photography.
- 750. Graduate Printmaking. Cr. 3*. (Max. 24)**
Material fee as indicated in *Schedule of Classes*. Advanced work in any printmaking medium.
- 755. Graduate Problems in Ceramics. Cr. 3*. (Max. 24)**
Prereq: ART 555. Material fee as indicated in *Schedule of Classes*. Individual problems in advanced ceramics.
- 760. Graduate Study in Metal Arts. Cr. 3*. (Max. 24)**
Prereq: ART 560. Material fee as indicated in *Schedule of Classes*. Individual problems. Directed study and project development in metal arts.
- 765. Graduate Problems in Weaving. Cr. 3*. (Max. 24)**
Prereq: ART 565. Material fee as indicated in *Schedule of Classes*. Advanced problems in weaving.
- 766. Graduate Problems in Fibers. Cr. 3*. (Max. 24)**
Prereq: ART 566. Material fee as indicated in *Schedule of Classes*. Individual problems in fibers.
- 798. Seminar in Art. Cr. 2**
Prereq: consent of department chairperson. Directed reading, research, bibliography.
- 799. Master's Essay Direction. Cr. 3**
Prereq: consent of adviser.
- 870. Master of Fine Arts Projects. Cr. 3*. (Max. 9)**
Prereq: consent of adviser. Open only to M.F.A. candidates. Execution of specific advanced projects as determined by adviser and M.F.A. candidate's advisory committee under Plan C.
- 880. M.F.A. Studio: Drawing. Cr. 6-9*. (Max. 36)**
Open only to M.F.A. students. Extended problems in drawing; individual research with eighteen to twenty-seven hours of laboratory per week.
- 881. M.F.A. Studio: Painting. Cr. 6-9*. (Max. 36)**
Open only to M.F.A. students. Extended problems in painting; individual research with eighteen to twenty-seven hours of laboratory per week.
- 882. M.F.A. Studio: Sculpture. Cr. 6-9*. (Max. 36)**
Open only to M.F.A. students. Extended problems in sculpture; individual research with eighteen to twenty-seven hours of laboratory per week.
- 883. M.F.A. Studio: Design. Cr. 6-9*. (Max. 36)**
Open only to M.F.A. students. Extended problems in design; individual research with eighteen to twenty-seven hours of laboratory per week.
- 884. M.F.A. Studio: Printmaking. Cr. 6-9*. (Max. 36)**
Open only to M.F.A. students. Extended problems in photography; individual research with eighteen to twenty-seven hours of laboratory per week.
- 885. M.F.A. Studio: Photography. Cr. 6-9*. (Max. 36)**
Open only to M.F.A. students. Extended problems in photography; individual research with eighteen to twenty-seven hours of laboratory per week.
- 886. M.F.A. Studio: Metal Arts. Cr. 6-9*. (Max. 36)**
Open only to M.F.A. students. Extended problems in metalsmithing; individual research with eighteen to twenty-seven hours of laboratory per week.
- 887. M.F.A. Studio: Fibers. Cr. 6-9*. (Max. 36)**
Open only to M.F.A. students. Extended problems in fibers; individual research with eighteen to twenty-seven hours of laboratory per week.
- 888. M.F.A. Studio: Ceramics. Cr. 6-9*. (Max. 36)**
Open only to M.F.A. students. Extended problems in ceramics; individual research with eighteen to twenty-seven hours of laboratory per week.
- 897. Master of Fine Arts Colloquium. Cr. 3**
Open only to M.F.A. students. Special programs by visiting lecturers, graduate staff and graduate students.
- 898. Master of Fine Arts Seminar. Cr. 3**
Open only to M.F.A. students. Concepts of art; contemporary art problems.

899. **Master's Thesis Research and Direction.** Cr. 4*, (Max. 8)
Prereq: consent of adviser.

Art History (A H)

Courses whose credit is marked with an asterisk may be elected for additional credits (not exceeding the allowable maximum) in a given semester with written consent of instructor.

100. Elements of Art. Cr. 3

Forms and functions of art; uses of art; roles of the artist; iconography and symbols.

101. Great Art of the World. Cr. 3

Presentation and discussion of representative monuments and artists of the major periods and regions; artistic function and character of the works as a part of the continuum of civilizations.

103. Introduction to Asian Art. Cr. 3

Development of art and architecture in India, Southeast Asia, China and Japan from prehistoric origins to the modern era.

111. Paleolithic through Gothic Art Survey. Cr. 3

112. Renaissance Through Modern Art Survey. Cr. 3

202. Art Media: History and Techniques. Cr. 3

History of traditional media; lecture, demonstration, laboratory.

203. The Sculptural Tradition. Cr. 3

A historical survey of sculptural form from paleolithic times to the present.

205. Western Architecture. Cr. 3

Major styles of architecture from the civilizations of Egypt and Mesopotamia to the present day.

280. Arts of Africa. Cr. 3

Selected sub-Saharan African arts including body aesthetics, decorative arts, figurative wood sculpture, masking traditions, royal or kingdom arts, and domestic-sacred architecture.

282. Arts of Indian Americas. Cr. 3

Survey of arts and architecture of ancient Mexico and Peru and some North American Indian societies; archaeological record, craft technology, cultural significance and aesthetic concerns.

286. Survey of Arts of China. Cr. 3

Major monuments and styles.

287. Survey of Arts of Japan. Cr. 3

Major monuments and styles.

289. Survey of Far Eastern Ceramics. Cr. 3

Ceramic wares of China, Korea, Japan, and Southeast Asia from neolithic era to nineteenth century; development of forms, techniques, glazes, and decoration.

301. Art in the United States. Cr. 3

Works by major American artists, architects and artisans from colonial times to the present. Works are examined both as reflections of the aesthetic interests of their times and as cultural-historical documents.

340. Medieval Architecture. Cr. 3

Prereq: A H 111 or equiv. Principles of early medieval architecture: formulae of the buildings and the evolutionary development of the great gothic cathedrals.

370. Modern Art: Nineteenth and Twentieth Centuries. Cr. 3

Prereq: A H 112; or coreq: 112 with consent of instructor. Survey of the major periods and styles of nineteenth and twentieth century art; specific themes and concepts in modern art; relationships and contrasts between artists.

372. Contemporary American Art. Cr. 3

Major developments in American painting and sculpture from the Armory Show to the 1970s.

378. Modern Architecture. Cr. 3

Survey of major forms and styles.

501. Women and Art. Cr. 3

Presentation and discussion of specific issues and individual artists.

505. Architecture: Its Preservation and Restoration. Cr. 3

Survey of the background, techniques and methodologies of historical preservation, including legal techniques, philosophy, historical surveys. Field project work emphasized.

507. Art and Archeology of Ancient Egypt. Cr. 3

An introduction to the history and development of Egyptian artistic style in architecture, sculpture, painting and the applied arts; historical, social and religious background.

509. Introduction to Art Historical Research. Cr. 3

Introduction to art historical sources and resources, research methods and problems in a variety of fields, including methods of paper writing, publication and presentation.

510. Biblical Archaeology. Cr. 3

The Bible and archaeology in the light of recent research.

514. Art of the Ancient Near East. Cr. 3

Neolithic through Achaemenian art.

520. Classical World: Minos to Alexander. Cr. 3

Art and architecture from the Minoan to the classical period.

521. Hellenistic and Roman Art. Cr. 3

Discussion of the art and architecture of the Hellenistic and the Roman Empires.

530. Early Christian and Byzantine Art. Cr. 3

The evolution of Christian imagery.

540. Art and Architecture of the Early Middle Ages. Cr. 3

Art and architecture in Western Europe from the Dark Ages through the twelfth century.

541. Gothic Art and Architecture. Cr. 3

Gothic art and architecture in Western Europe from 1140 to 1400, including manuscripts, metalwork, stained glass, as well as the architectural context in which they were used.

545. Romanesque Art and Architecture. Cr. 3

The arts in western Europe (France, Germany, Italy, England) between 1050 and 1150; origins and spread of the Romanesque style in the milieu of monasticism and the Crusades. Metalwork, ivories, book illumination, stained glass and sculpture in the monastic church and cloisters.

548. The Illuminated Book. Cr. 3

The pivotal role of the illustrated Christian manuscript from antiquity to the printed book.

550. Early Renaissance in Italy. Cr. 3

Art and architecture from Giotto to Botticelli; transformation of late medieval art prior to Black Death, classical revival in Florence; North Italian artists such as the Bellinis and Mantegna.

- 551. High Renaissance and Mannerism in Italy. Cr. 3**
The art of Leonardo, Raphael, Michelangelo, Titian, and their contemporaries.
- 553. Northern European Painting in the Fourteenth and Fifteenth Centuries. Cr. 3**
Northern painting from its sources in the Franco-Flemish manuscript tradition and Bohemian schools to the great masters of the fifteenth century.
- 555. Flemish and German Painting in the Sixteenth Century. Cr. 3**
Development of Flemish and German painting from c. 1745 to 1600, with emphasis on the art of Bosch, Breugel, Durer, Grunewald and Holbein.
- 560. Baroque Art and Architecture in Italy, Spain and France. Cr. 3**
Art and architecture in Papal Rome and at the courts of Madrid and Versailles, including Caravaggio, Bernini, Borromini, Velasquez, and Poussin.
- 561. Flemish and Dutch Painting in the Seventeenth Century. Cr. 3**
Netherlandish painting in the cultural context of Catholic, aristocratic Flanders and the Protestant, middle-class Dutch republic; Rubens, Van Dyck, Hals, Rembrandt and Vermeer.
- 563. Baroque and Rococo in Germany and Austria. Cr. 3**
Painting, sculpture and architecture in Germany and Austria from 1600 to the end of the eighteenth century: Elsheimer, von Erlach, Neumann and Schluter.
- 569. Art and Architecture of Georgian England. Cr. 3**
British architecture from Van Brugh to Nash and Soane; painting through Turner; decorative arts.
- 570. Nineteenth Century European Painting. Cr. 3**
Major styles, developments and masters.
- 572. Twentieth Century European Art. Cr. 3**
Expressionism, Cubism and related developments of abstract and figurative art.
- 574. Dada, Futurism, and Surrealism. Cr. 3**
Literary and artistic history of these movements; their development in Germany, France and America.
- 576. German Expressionism. Cr. 3**
German Expressionist painting and sculpture in Imperial Germany, the Weimar Republic, and the Nazi regime; members of *Die Brucke* and *Der Blaue Reiter* and the independents such as Beckmann, Kokoshka, and Barlach.
- 578. Architecture in Michigan and the Midwest. Cr. 3**
Nineteenth and twentieth century architecture primarily in Detroit and Chicago.
- 580. Royal Arts of Africa. Cr. 3**
Exploration of metalworking and other media associated with pre-colonial kingdoms of West and Central Africa.
- 584. Early Chinese Painting. Cr. 3**
Prereq: A H 103, 286. Major trends in Chinese painting from the neolithic period to the end of the Yuan Dynasty (14th century). Major emphasis will be placed on landscape painting, but figure painting and "bird and flower" painting will be covered.
- 585. Chinese Neolithic and Bronze Age Arts. Cr. 3**
Developments in stone tools, ceramics, bronze vessels, lacquerwares; tombs, their construction, ornamentation, and furnishings.
- 586. Chinese Landscape Painting. Cr. 3**
Origins and developments, focusing on major masters and styles.
- 587. Early Japanese Painting. Cr. 3**
Prereq: introductory course in Asian art or consent of instructor. Major trends in Japanese painting from the seventh to the seventeenth century. Selected topics for concentrated study from significant types of Japanese painting.
- 588. Japanese Architecture and Gardens. Cr. 3**
Architectural developments in Buddhist temples, Shinto shrines, and domestic sculptures; survey of gardens in relation to temples and dwellings.
- 589. The Japanese Print. Cr. 3**
Development of techniques, styles, and themes in the history of Japanese prints from the seventeenth to the nineteenth century.
- 590. Directed Study. Cr. 3**
Open only to art history majors. Supervised advanced reading and research in the history of art.
- 591. Later Japanese Painting. Cr. 3**
Prereq: A H 103, 287. Seventeenth-, eighteenth-, and nineteenth-century Japanese painting: *Rimpa*, *Ukiyo-e*, *Bunjinga*, *Shasei*. Current art trends.
- 630. Iconoclastic Controversies in Judaeo-Christian Art. Cr. 3**
- 648. Masterpieces of Manuscript Illumination. Cr. 3**
Discussion and analysis of significant medieval illuminated manuscripts.
- 665. Versailles Commands: The Art and Architecture of Eighteenth Century France. Cr. 3**
Architects, painters, sculptors, craftsmen and patrons associated with Versailles.
- 670. Nineteenth Century German Painting. Cr. 3**
Winkelmann, Goethe, Mengs; Novalis and Schelling; Friedrich and Rubge; the Nazarenes and the revival of panel and fresco painting; the "German Romans", Feuerbach, Bibklin, von Marees; Liebermann and Klimt.
- 672. Nineteenth and Twentieth Century Russian Art. Cr. 3**
Major styles and masters; connections with contemporary developments in Western European art and specifically Russian aspects.
- 676. Social History and Art in America, 1619-1887. Cr. 3**
Architecture, painting, sculpture and patronage during the period.
- 677. Social History and Art in America, 1888-1980. Cr. 3**
Architecture, painting, sculpture and patronage during the period.
- 680. African-American Art. Cr. 3**
Survivals, transformations and reintegrated arts of Afro-American of South America, the Caribbean, and Southeastern United States.
- 684. Later Chinese Painting. Cr. 3**
Prereq: A H 103, 286, and 584. Continuation of A H 584. Emphasis on the development of literati painting in the Ming and Ch'ing Dynasties. Western influence on Chinese painting and 20th century artists.
- 692. Art Archives Practices. Cr. 3* (Max. 9)**
Prereq: consent of adviser and director of Archives of American Art. Open only to art history majors. On-the-job training in the Archives of American Art, Detroit Institute of Arts.
- 695. Museum Practices. Cr. 3**
Prereq: written consent of director of museology program. Open only

to art history majors. History of public collections in Europe and the United States; introduction to museum administration and management.

714. **Seminar in Ancient Near Eastern Art.** Cr. 3*.(Max. 9)
Topics to be announced in *Schedule of Classes*.
720. **Seminar in Greek and Roman Art.** Cr. 3*.(Max. 9)
Topics to be announced in *Schedule of Classes*.
730. **Seminar in Early Christian and Byzantine Art.**
Cr. 3*.(Max. 9)
Topics to be announced in *Schedule of Classes*.
740. **Seminar in Medieval Art.** Cr. 3*.(Max. 9)
Topics to be announced in *Schedule of Classes*.
750. **Seminar in Renaissance Art.** Cr. 3*.(Max. 9)
Topics to be announced in *Schedule of Classes*.
760. **Seminar in Baroque and Rococo Art.** Cr. 3*.(Max. 9)
Topics to be announced in *Schedule of Classes*.
770. **Seminar in Modern Art.** Cr. 3*.(Max. 9)
Topics to be announced in *Schedule of Classes*.
772. **Seminar in American Art and Architecture.** Cr. 3*.(Max. 9)
Topics to be announced in *Schedule of Classes*.
775. **Seminar in Art Historical Methodology.** Cr. 3*.(Max. 9)
Topics to be announced in *Schedule of Classes*.
779. **Studies in Art History.** Cr. 3
Open only to graduate students in art history. Graduate students attending a scheduled 500-level course pursue advanced research on topics related to the course.
780. **Seminar in Ethnographic Art.** Cr. 3*.(Max. 9)
Topics to be announced in *Schedule of Classes*.
785. **Seminar in Asian Art.** Cr. 3*.(Max. 9)
Topics to be announced in *Schedule of Classes*.
788. **Museum Internship.** Cr. 3*.(Max. 27)
Prereq: admission to museology program. On-the-job training program in museum research and procedures at the Detroit Institute of Arts and other participating museums.
789. **Studies in Connoisseurship.** Cr. 3
Prereq: admission to museology program or written consent of instructor. Problems of authentication, attribution, provenance, and conservation, with the assistance of the curatorial staff of the Detroit Institute of Arts.
799. **Master's Essay Direction.** Cr. 3
Prereq: consent of adviser.
899. **Master's Thesis Research and Direction.** Cr. 2-8(8 required)
Prereq: consent of adviser.

BIOLOGICAL SCIENCES

Office: 210 Science Hall

Chairman: John D. Taylor

Vice Chairman: John W. Cosgriff, Jr.

Academic Services Officers: Lynne M. Aldrich, Margaret M. Pedersen, Linda R. VanThiel

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Associate Professors

Robert Arking, Joseph T. Armstrong, Kuo-Chun Chen, David M. DeForest (Emeritus), Hector R. C. Fernandez, V. Hari, Roman W. Harkaway (Emeritus), Leo S. Luckinbill, Willis W. Mathews, Jessie L. Metcalf (Emeritus), Curtis J. Swanson, Robert S. Stephenson, Rosario R. Teodoro (Emeritus)

Assistant Professors

D. Carl Freeman, David L. Njus, Howard R. Pétty, Ann Sodja

Adjunct Professors

Michael Conrad, Morris Goodman, Samuel B. Horowitz, Barbara J. McArthur, Tche-Tsing Tchen

Adjunct Associate Professors

Haim I. Bicher

Adjunct Assistant Professors

Herbert R. Halvorson, Kenneth V. Honn, Karen Hunter, Rajjit S. Sandhu, Charles R. Sterling, Daniel L. VanDyke

DEGREE PROGRAMS

Bachelor of Arts—with a major in biological sciences

Bachelor of Science in Biological Sciences

Master of Science—with a major in biological sciences and specialization in environmental, evolutionary and systematic biology, or molecular and developmental biology, or regulatory biology and biophysics.

Doctor of Philosophy—with a major in biological sciences and specialization in environmental, evolutionary and systematic biology, or molecular and developmental biology, or regulatory biology and biophysics

The department consists of three divisions: Division of Environmental, Evolutionary and Systematic Biology; Division of Molecular and

Developmental Biology; and Division of Regulatory Biology and Biophysics. Together, they offer comprehensive knowledge in biological sciences. Individually, each offers in-depth training in the area of specialization for future professional biological scientists.

Bachelor of Arts

Major Requirements: Students contemplating a major program in biological sciences should consult with the undergraduate departmental adviser as soon as possible, but 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 Biological Sciences 101 and 102 or their equivalents, before declaring a major in biological sciences.

Students must have an over-all grade point average of at least 2.0 (and at least a 2.0 average in previous biological sciences 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 biological sciences are required to take Chemistry 107 and 108. An additional twenty-five semester credits in biological sciences courses are required of the major, including Biological Sciences 307, 340, and 312 or 509. Courses through the 600 level may be elected providing the proper prerequisites have been taken. No course having '8' as the second digit may be used for departmental major credit. At least twelve of the twenty-five credits must be taken in residence.

Bachelor of Science

The Bachelor of Science degree is for those students who wish to follow a career in the sciences and/or those planning to enter post-graduate professional schools. The degree requirements for the Bachelor of Science, therefore, are different from those under the Bachelor of Arts degree. Only French, German, Italian, Russian or Spanish fulfills the language requirement for the Bachelor of Science. In addition, certain cognate courses must be taken and these will be found below. Otherwise, the same biological sciences and introductory core requirements, and identical Liberal Arts Group Requirements, as stated in the preceding paragraph, hold for both degrees.

The Bachelor of Science with a major in biophysics and molecular biology is also offered as an alternative Bachelor of Science degree. As with the Bachelor of Science with a biological sciences major, the biophysics and molecular biology degree fulfills professional school requirements; it has the identical language requirements but the cognates differ.

Required Cognate Courses for the B.S. Degree: It is required that a major in Biological Sciences include Chemistry 227, Physics 214 or 218, and Mathematics 202 in his or her curriculum. Majors should take the placement examination of the Department of Mathematics as soon as possible upon entry into the freshman year.

Combined Degree with Dentistry and Medicine: Students majoring in biological sciences who are candidates for a combined degree must complete the same requirements listed above for biological sciences majors except that a minimum of twelve credits are required in biological sciences beyond Biological Sciences 101 and 102.

Over-age Credits: A student attempting to complete a biological sciences major after a prolonged period of interruption of his/her education may find that some of the course work in biological sciences is out of date. In this case, the record will be reviewed and the department may require the student to fulfill biological sciences course requirements existing at the time of his/her return.

Transfer Students: Transfer students should consult with the undergraduate departmental adviser during the semester prior to their

transfer.

Transfer students contemplating a combined degree with dentistry or medicine must complete the same requirements listed above for biological science majors except that a minimum of twelve credits are required *in residence* in biological sciences beyond Biology 101 and 102.

Determination of course equivalency will be made by the undergraduate departmental adviser in conjunction with the College of Liberal Arts Evaluation Office. The Department reserves the right for the final determination of course equivalency.

Bachelor of Science in Biological Sciences

Suggested Program One

First Year

<i>Fall Semester</i>	<i>Winter Semester</i>
Biology 101 4	Biology 102 4
Chemistry 107 4	Chemistry 108 5
Language 4	Language 4
English 102 4	English elective 3
Total: 16	Total: 16

Second Year

Biology 307 4	Biology 340 3
Chemistry 224 4	² Chemistry 226 4
Language 4	Group Requirement 3
Mathematics 180 or 201 4	Mathematics 201 or 202 4
Total: 16	² Chemistry 227 2
	Total: 16

Third Year

Biology 312 or	Biology 509 or
Biology elective 4	Biology elective 3
Physics 213 4	Physics 214 4
Math 202 or elective 4	Group Requirement 4
Group Requirement 3	Group Requirement 4
Total: 15	Total: 15

Fourth Year

Biology 594 1	Biology 594 1
Biology elective 5	Biology elective 5
Elective 4	Elective 4
Group Requirement 4	Group Requirement 4
Total: 14	Total: 14

Biophysics and Molecular Biology Major Requirements for Specialization

1. Students contemplating a major program in biophysics and molecular biology 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.

¹ Language: French, German, Italian, Spanish or Russian required.

² Required for pre-professional schools. Certain medical schools also require Chemistry 312, Analytical Chemistry.

- 582. Natural History of Plants and Animals. (Lab: 3; Let: 2). Cr. 3**
Prereq: BIO 100 or 101 or equiv. Study of living plants and animals in their natural environment; consideration of changing human attitudes toward the environment. For a general audience, including teachers and others interested in field work in the biological sciences. Special methods for studying living organisms.
- 585. (BIO 385) Human Heredity. Cr. 3**
Prereq: consent of instructor. Not for biology major credit. No credit after BIO 307. Development, anatomy and physiology of human sexual dimorphism; basis of Mendelian genetics as applied to man; inborn errors of metabolism, genetic engineering and understanding human population dynamics.
- 590. Honors Directed Study in Biology. Cr. 2 (Max. 4)**
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 semester preceding election of the course. (F,W,S).
- 594. Senior Seminar for Bachelor of Science Programs. (Smr: 1.5). Cr. 1(Max. 2)**
Prereq: written consent of adviser. Not a requirement for the Bachelor of Science degree. Aspects of current biological research presented by well-known speakers. (F,W).
- 595. Senior Seminar: Honors Program. (Smr: 1). Cr. 1 (Max. 2)**
Prereq: consent of adviser; completion of core courses and a minimum of two credits in BIO 590. Open only to Honors students in biology. (F,W).
- 596. Senior Research for Bachelor of Science Programs. Cr. 1-2(Max. 3)**
Prereq: written consent of instructor and biology adviser. Not a requirement for the Bachelor of Science degree. Original research under direction of graduate staff. (F,W,S).
- 599. Terminal Essay: Honors Program. Cr. 2**
Prereq: consent of department and Honors adviser; senior standing and BIO 590. Preparation of a terminal essay, satisfactory completion of which assures Honors graduation, providing performance in preceding Honors courses has been at Honors level. (F,W,S).
- 600. Cell Biology: Lecture. (Lct: 3). Cr. 3**
Prereq: BIO 220 or 340; PHY 214; CHM 226 or consent of instructor. Integrated analysis of cells; their macromolecules, subcellular organization, energetics and regulation.
- 601. Cell Biology: Laboratory. (Lct: 2). Cr. 2**
Prereq. or coreq: BIO 600. Material fee as indicated in *Schedule of Classes*. Laboratory experimentation. Integrated analysis of cells, their macromolecules, subcellular organization, energetics and regulation.
- 602. Biological Instrumentation. (Lct: 2; or Lct: 2; Lab: 6). Cr. 2 or 4**
Prereq: senior or graduate standing in biology. If taken for four credits, material fee \$20. Theory and use of physical techniques for biological studies. Introduction to laboratory application of computers.
- 605. Techniques in Electron Microscopy. (Lab: 6; Lct: 2). Cr. 4**
Prereq: BIO 513 and written consent of instructor. Material fee as indicated in *Schedule of Classes*. Use of the electron microscope, ancillary sectioning and darkroom equipment in present or future research efforts. Evaluation of publications which use these techniques.
- 607. Human Genetics. (Lct: 3). Cr. 3**
Prereq: BIO 307. Mechanisms of human inheritance in individuals, families and populations. Sampling methods and data procurement. Statistical analysis of gene frequencies; cytogenetics and biochemical determinations of phenotypes.
- 608. Genetics of Microorganisms and Cells *In Vitro*. (Lct: 3). Cr. 3**
Prereq: BIO 307. Principles and current progress in genetics at the molecular and cellular levels. Emphasis on those features of microorganisms and cultured animal and human cells appropriate for the study of the fundamental mechanisms concerning recombination, replication, metabolic functioning.
- 609. Evolutionary Genetics. (Lab: 3; Lct: 2). Cr. 3**
Prereq: BIO 307, 504. An integrated lecture/laboratory course in the application of genetics to organic evolution. Theoretical population genetics and readings in the original literature are emphasized. The laboratory has an open structure that allows students to conduct several classical experiments in population genetics.
- 610. Biosynthesis and Metabolism. (Lct: 4). Cr. 4**
Prereq: BIO 102; CHM 224. Biosynthesis and metabolism of proteins, carbohydrates, lipids, steroids, amino acids and nucleic acids. The basic principles of enzyme kinetics in living systems.
- 616. Biophysics and Molecular Biology. (Lct: 3). Cr. 3**
Prereq: one year of biology and chemistry or physics. Analysis of the biologically important aspects of thermodynamics, chemical bonding, macromolecular structure, and transport processes.
- 617. Biophysics and Molecular Biology Laboratory. (Lct: 1; Lab: 6). Cr. 3**
Prereq. or coreq: BIO 616. Material fee as indicated in *Schedule of Classes*. Concepts of biophysics to advanced techniques and quantitative methods. Experiments include spectrophotometry, fluorescence, radioisotope studies; structure of proteins, polynucleotides, and membranes; enzyme kinetics, and electrochemical potentials in reactions and transport.
- 618. Molecular Cellular Physiology. (Lct: 3). Cr. 3**
Prereq: one year of biology and chemistry; BIO 616 recommended. Analysis of cellular function, stressing structural features; compartmentalization, cybernetics, and other metabolic regulatory phenomena involved in cell assembly, growth, cell cycle timing, and differentiated functions of transport, and energy coupling in specialized tissues.
- 620. General Bacteriology. (Lct: 3). Cr. 3**
Prereq: BIO 220 or consent of instructor; a course in organic chemistry. General bacteriological phenomena, including the diversity of bacteria, with emphasis on ideas, mechanisms and fundamental principles.
- 635. Microbial Ecology. (Lct: 2). Cr. 2**
Prereq: eight credits in bacteriology. Ecological relationships between microorganisms and higher forms in soils, the marine environment, the bovine rumen, insects, and in petroleum fields.
- 661. Experimental Embryology. (Lct: 1; Lab: 6). Cr. 3**
Prereq: BIO 561 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.
- 662. Physiological Ecology. (Lct: 3). Cr. 3**
Prereq: BIO 312 and 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 taxis.

664. Advanced Ecology. (Lct: 3). Cr. 3

Prereq: BIO 312. Discussion and analysis of recent topics in ecological theory.

666. Neurophysiology. (Lct: 3). Cr. 3

Prereq: BIO 340 and 341 and consent of instructor; prereq. or coreq: CHM 662. Physiology and biophysics of neuronal control systems.

667. Comparative Animal Physiology and Biochemistry. (Lct: 3). Cr. 3

Prereq: one course in physiology; one previous course in biochemistry highly recommended. A comparative analysis of biological mechanisms and adaptations of cellular and systemic variations which allow for biological success in a multiplicity of changing environments.

700. Recent Advances in Molecular and Developmental Biology. (Lct: 2). Cr. 2 (Max. 6)

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*.

702. Comprehensive Virology. (IM 770). (Lct: 3). Cr. 4

Prereq: CHM 662 or equiv.; consent of instructor. A study of the basic principles of virology including virus structure, the nature of virus-host interactions and the molecular biology of virus multiplication. The course will also include workshops on virus structure, virology techniques and presentations by guest speakers.

703. Gene Structure and Function. (Lct: 4). Cr. 4

Prereq: BIO 307 and CHM 662. Detailed analysis of the synthesis, structure, function, and control of genes in prokaryotes, eukaryotes, and their viruses.

705. Recent Advances in Environmental, Evolutionary and Systematic Biology. (Lct: 2). Cr. 2 (Max. 6)

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*.

707. Physiological Genetics. (Lct: 3). Cr. 3

Prereq: BIO 307. Physical and chemical properties of the genetic material; the fundamental mechanisms concerned with its replication, function, mutation, recombination and regulation; molecular basis of evolution. A critical presentation of interdisciplinary subjects of biology, biochemistry and biophysics in relation to recent advances in genetic engineering.

708. Genetics of Microorganisms and Cells In Vitro. (Lct: 3). Cr. 3

Prereq: BIO 307. Principles and current progress in genetics at the molecular and cellular levels. Emphasis on those features of microorganisms and cultured animal and human cells appropriate for the study of the fundamental mechanisms concerning recombination, replication, metabolic functioning. Includes independent studies.

709. Developmental Genetics. (Lct: 3). Cr. 3

Prereq: BIO 562. An examination of the current and classical research literature dealing with the role of gene action in development.

713. Biological Fine Structure. (Lct: 3). Cr. 3

Prereq: 18 credits in biology. Advanced studies relating to how cellular components as revealed by electron microscopy can be correlated with recent biological information obtained using membrane models, cyto- and histochemical techniques, immunocytochemistry, gel electrophoresis, column chromatography and various biochemical techniques. Includes independent studies.

716. Advanced Biophysics. (Lct: 3). Cr. 3

Prereq: consent of instructor. Biophysical aspects of life; molecular biophysics, thermodynamics of macromolecules, excited states in

biology, information transport, and molecular aspects of regulation.

717. Recent Advances in Regulatory Biology and Biophysics. (Lct: 2). Cr. 2 (Max. 6)

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*

719. (ANA 719) Neuroscience Survey. (Lct: 3). Cr. 3

Prereq: written consent of instructor. A substantive overview of neuroscience as a multifaceted discipline presented by faculty from the departments of anatomy, biochemistry, biology, immunology and microbiology, neurology, pharmacology, physiology and psychology. A comprehensive critical essay required.

720. Physiology of Bacteria. (Lct: 3). Cr. 3

Prereq: BIO 620 and biochemistry. Cell structure, chemistry and function; mechanisms and regulation of biochemical changes during bacterial growth and metabolism.

723. Antimicrobial Agents. (Lct: 2). Cr. 2

Prereq: BIO 220 and 610 or 620. The basis for selection and modes of action (physiological) of chemical and physical agents used to control the growth of microorganisms.

736. Microbial Ecology Laboratory. (Lab: 3). Cr. 1

Prereq. or coreq: BIO 635. 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.

747. Advanced Plant Physiology. (Lct: 3). Cr. 3

Prereq: BIO 546 and one course in organic chemistry. Growth and development of higher plants. Environmental influences and growth controlling chemical factors.

766. Neurophysiology. (Lct: 3). Cr. 3

Prereq: BIO 340 and 341 and consent of instructor; prereq. or coreq.: CHM 662. Physiology and biophysics of neuronal control systems. Includes independent studies.

767. Comparative Animal Physiology and Biochemistry. (Lct: 3). Cr. 3

Prereq: one course in physiology; one course in biochemistry strongly recommended. A comparative analysis of biological mechanisms and adaptations of cellular and systemic variations which allow for biological success in a multiplicity of changing environments. Includes independent studies.

768. Endocrinology. (Lct: 4). Cr. 4

Prereq: BIO 340. Functional evolution of the chemoregulatory mechanisms in vertebrates. The physiology and biochemistry of hormones; interhormonal relationships in metabolic maintenance of homeostasis, growth, development; endocrinopathies. Includes independent studies.

770. Animal Behavior Laboratory. (Lab: 6). Cr. 2

Prereq. or coreq: BIO 569; consent of instructor. No credit after BIO 579. Material fee as indicated in *Schedule of Classes*. Environmental analysis in independent studies.

796. Research Problems. Cr. 1-8 (Max. 8 for M.S. students who may not elect more than 4 credits per semester; max. 32 for Ph.D. students, who may take up to 8 credits per semester)

Prereq: consent of adviser or instructor. Original investigation. (F,W,S).

800. Special Topics. Cr. 1-6(Max. 6, M.S.; max. 12, 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 discussion. Topics to be announced in *Schedule of Classes*. (F,W).

895. Graduate Seminar in Biology. Cr. 1(Max. 4)
 Prereq: graduate standing in biology. Graduate students are required to take two semesters: doctoral students may elect on a continuing basis. Presentations by graduate staff, advanced students, and visiting lecturers. (F,W).

899. Master's Thesis Research and Direction. Cr. 2-8(8 req.)
 Prereq: consent of instructor. (F,W,S).

999. Doctoral Dissertation Research and Direction. Cr. 1-16 (30 req.)
 Prereq: consent of doctoral adviser. Offered for S and U grades only. (F,W,S).



BLACK STUDIES

Office: 586 Student Center Building

Acting Director: Perry A. Hall

Lecturers

Patricia W. Coleman-Burns, Schavi M. Diara, L. Todd Duncan

Part-Time Faculty

Ella Davis, George N'Namdi

Adjunct Faculty

Norman Harris

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 (twenty-one credits) and the elective requirements (minimum of fifteen credits). A student in the co-major is expected to fulfill the designated core requirements and elect a minimum of fifteen credits in Black Studies courses and other courses from a select list. Some courses in the Black Studies Co-Major may satisfy departmental major requirements. Core courses BKS 201 and 221 may also be applied toward completion of Liberal Arts group distribution requirements in Social Science (BKS 221) and Humanities (BKS 201). For more information, contact an adviser in the Program, at 577-2321.

Admission: Students may apply for acceptance to the Black Studies Co-Major Program by submitting a *Declaration of Major Form* to the co-major adviser at the beginning of their junior year.

— Core Requirements

	<i>credits</i>
BKS 201 — Afro-American Culture.....	4
BKS 221 — Contemporary Black Social and Political Thought.....	4
BKS 501 — The Black Community and Public Policy.....	3
ENG 547 — Afro-American Literature.....	3
HIS 314 — The Black Experience in America I: 1619-1865.....	3
<i>or</i>	
HIS 315 — The Black Experience in America II: 1865-Present.....	3
SPC 504 — Communication in the Black Community.....	3

COURSES OF INSTRUCTION¹ (BKS)

101. Dimensions of the Black Experience: An Introduction. (I D 101). Cr. 3

An interdisciplinary approach to black studies, exploring several broad issues, topics, theories, concepts and perspectives which describe and explain the black experience in America.

201. Afro-American Culture: Historical and Aesthetic Roots. (I D 201). Cr. 4

Prereq: BKS 101 or consent of instructor. Core requirement for black

¹ See page 633 for interpretation of numbering system, signs and abbreviations

studies co-majors. Examination of the historical and aesthetic bases of a variety of forms of cultural reflection - language, literature, music - of the black experience in America.

221. Contemporary Black Social and Political Thought. (I D 221). Cr. 4

Prereq: BKS 101 or consent of instructor. Core requirement for black studies co-majors. Survey of major social and political themes in the black experience with emphasis on the Black Movement of 1950s-1970s from a dialectical and social movements model.

301. Afro-American Culture: Development and Transformation. (I D 301). Cr. 4

Prereq: BKS 201 or ENG 239 or consent of instructor. Theoretical perspectives on development of Afro-American creative culture and expression; emphasis on modern transformations and contemporary forms.

501. The Black Community and Public Policy. (I D 501). Cr. 3

Prereq: BKS 201 or 221 or consent of instructor. Core requirement for black studies co-majors. Identification and exploration of questions of black community interest, as related to issues of public policy - education, employment, equal opportunity, development of political and social institutions - which have significant impact on the black community.

504. Financial Perspectives and the Black Experience. (I D 504). Cr. 3

Prereq: BKS 201 or 221 or consent of instructor. An introduction to finance. The manner in which financial decisions and dynamics affect the career objectives and life choices of blacks (and other minorities) whose aspirations for professional careers often derive from unique sets of social, cultural and economic dynamics.

511. Black Women in America. (I D 511). Cr. 3

Prereq: BKS 201 or 221 or consent of instructor. Historical, social, political and economic oppression of black women in America: racism, sexism, marriage, motherhood, feminism, the welfare system; implications for advancement in the black community.

531. Special Topics in Black Studies. (I D 531). Cr. 3

Prereq: BKS 201 or 221 or consent of instructor. Seminar for investigating special topic areas related to the black experience - such as the black family, the black woman, and male-female relationships among black people - which emerge from contemporary or historical issues and conditions.

591. Field Work in the Black Community. (I D 591). Cr. 4-12

Prereq: two black studies courses and written consent of instructor. Offered for undergraduate credit only. Field placement in a variety of possible settings within community-based organizations and institutions which deal substantially with the concerns of the black community.

690. Directed Study in Black Studies. (I D 690). Cr. 3-12

Prereq: BKS 201 or 221 and written consent of instructor. Reading and research projects.

699. Advanced Research Seminar. (I D 699). Cr. 3-12

Prereq: senior or graduate standing or consent of instructor. Specific themes or subjects for advanced level research seminar in the black experience. Topics to be announced in *Schedule of Classes*.

CHEMISTRY

Office: 123 Chemistry Building

Chairperson: Milton D. Glick

Professors

Robert D. Bach, Darrell D. Ebbing, John F. Endicott, Karl H. Gayer, Milton D. Glick, Richard B. Hahn (Emeritus), William L. Hase, Wilfried Heller (Emeritus), Carl R. Johnson, Tokuji Kimura, Stanley Kirschner, Norman A. LeBel, Edward C. Lim, Richard L. Lintvedt, W. Martin McClain, John P. Oliver, Wendell H. Powers (Emeritus), Morton Raban, Gene P. Reck, David B. Rorabacher, A. Paul Schaap, George H. Schenk, Calvin L. Stevens, Tche T. Tchen, Dan Trivich

Associate Professors

Alan Brenner, Lawrence J. Marnett

Assistant Professors

Ellen B. Brown, David M. Coleman, Leslie W. Fung, Colin F. Poole, James H. Rigby, Louis J. Romano, H. Bernhard Schlegel, Ronald R. Schroeder

Adjunct Professors

Erhard W. Rothe, Gary W. Carriveau

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.

Beginning Chemistry Courses: Students with no prior experience in chemistry may elect Chemistry 100 (for non-science majors); Chemistry 102 (for non-science majors and certain pre-professional students); or Chemistry 105 (for science majors and most pre-professional students continuing on to higher level courses). Students who have had a year or more of high school chemistry or the equivalent may register for Chemistry 107 or 131 (for science and preprofessional majors) provided that they meet the other eligibility requirements outlined below.

Chemistry 100 is a terminal survey course designed to acquaint non-science students with an appreciation of chemistry as it impacts on history, politics, and everyday living. When elected for four credits, this course includes a laboratory which satisfies the Liberal Arts

Natural Science Group Requirement for a laboratory course.

Chemistry 102 and 103 represent a terminal sequence designed to survey the various fields of chemistry for non-science majors and certain pre-professional students such as pre-nursing, occupational health, engineering technicians and others.

Chemistry 105 is designed as the beginning chemistry course for science majors, pre-professional students, and other students who have had no prior experience in chemistry but desire to obtain a strong background in the fundamentals of this subject.

Chemistry 107 (or 131) is designed as the beginning course for science majors and pre-professional students who have successfully mastered high school chemistry. Eligibility for Chemistry 107 must be established by passing a qualifying examination, covering basic high school material, which is administered by the Counseling Office of Testing and Evaluation, 343 Mackenzie Hall. The qualifying examination is administered several times prior to and during registration. To qualify for Chemistry 131, a student must receive a superior score on the qualifying examination or show other evidence of superior academic potential (receipt of Merit Scholarship, admission to Honors Program, etc.).

The sequence of Chemistry 107 (or 105) and 108, or 131 and 132, are prerequisite to all higher numbered courses in chemistry.

Credit for Advanced Placement: Advanced placement college credit in chemistry shall be awarded for scores earned in the chemistry qualifying examination as follows:

Score of 5: Credit awarded for Chemistry 131 and 108. Students may enroll in Chemistry 224, 132 or 312, or 302 in their first year.

Score of 4: Credit awarded for Chemistry 131. Students may enroll in Chemistry 108 or 132 (or may be encouraged to attempt credit for Chemistry 108 by examination).

Score of 3: Students automatically earn placement into Chemistry 131.

Minor in Chemistry: Students majoring in other fields who desire to obtain a minor in chemistry must complete the following courses: Chemistry 107 (or 105), 108, 224, 226, 227, and at least nine additional credits earned at Wayne State University in Chemistry courses numbered above 300 except seminar and research courses (CHM 485, 495, 599, etc.). Typically, the latter nine credits could be satisfied by electing Chemistry 302, 312, and 542. Qualified students may substitute Chemistry 131 and 132 for Chemistry 107, 108, and 312.

Bachelor of Arts

Students planning to major in chemistry should consult with an adviser in the Chemistry Department not later than the beginning of their sophomore year.

General Curriculum: This curriculum allows students to major in chemistry while providing flexibility for exposure in other cognate fields. It is particularly recommended (a) for students in science-oriented pre-professional fields (pre-medical, pre-dental), (b) for individuals entering secondary science teaching, and (c) for individuals interested in pursuing careers in chemistry who are unable to complete all of the requirements for the Bachelor of Science in Chemistry degree. While providing a less rigorous background in chemistry than that of the B.S. curriculum, the B.A. curriculum generally qualifies a person to enter graduate programs in chemistry or biochemistry or to enter industrial positions in chemistry following graduation. However, it is recommended that individuals in the latter categories fulfill the additional requirements for professional certification by the American Chemical Society outlined below.

Major Requirements: Those who wish to follow the general curriculum in the College of Liberal Arts for the B.A. degree with a major in chemistry must complete the following courses:

1. Chemistry 107 (or 105), 108, 224, 226, 227, 302, 312, 542, 555, and at least one of the following: 516, 544, 551, 560, or 662. A minimum of 12 credits in chemistry must be earned at Wayne State University. Qualified students may substitute 131 and 132 for 107, 108, and 312.
2. Physics 213 and 214, or 217 and 218.
3. Mathematics 201 and 202.

ACS Certification: B.A. candidates may receive certification by the American Chemical Society upon graduation by completing the following chemistry courses in addition to those required for the B.A. degree: Chemistry 544, 516, and two additional advanced laboratory courses (551, 557, 599). No substitutions are permitted.

To receive certification, students must submit an application along with a transcript to the Chemistry Department Curriculum Committee prior to the end of the final term.

Recommended Program

First Year

<i>Fall Semester</i>	<i>Winter Semester</i>
Chemistry 107 or 4	Chemistry 108 (or 132) 5
Chemistry 105 or 6	English 3
Chemistry 131 5	Mathematics 202 4
English 102 4	Group Requirements 3
Mathematics 201 4	Total: 15
Group Requirements 3	
Total: 15-17	

Second Year

Chemistry 224 4	Chemistry 226 4
Physics 213 or 4	Chemistry 227 2
Physics 217 5	Physics 214 or 4
Group Requirements 3	Physics 218 5
Life Science	Group Requirements 3
Group Requirement 3-4	Elective 3
Total: 14-16	Total: 16-17

Third Year

Chemistry 312 4	Chemistry 302 3
Chemistry 542 3	Group Requirements 4
Language I 4	Language II 4
Group Requirements 4	Elective 4
Total: 15	Total: 15

Fourth Year

Chemistry Elective 3-4	Chemistry 555 2
Language 4	Electives 12
Electives 7	Total: 14
Total: 14-15	

Bachelor of Science in Chemistry

Students planning to major in chemistry should consult with an adviser in the Chemistry Department not later than the beginning of their sophomore year.

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 or those entering other professional fields (e.g., medicine, dentistry) who desire an exceptionally strong background in chemistry.

Students may take a maximum of fifty-five credits in chemistry.

Major Requirements: Those who wish to follow the curriculum in the College of Liberal Arts for the B.S. degree in chemistry must complete the following courses:

1. The College Group Requirements in English, natural science (chemistry majors need only one course in the life sciences), humanities, and social science must be met. In place of the College Foreign Language Group Requirement, two semesters of German (preferred), French or Russian or equivalent proficiency are required.
2. Physics 217 and 218.
3. Mathematics 201, 202, 203, and 204.
4. Chemistry 107 (or 105 or 131), 108 (or 132), 224, 226, 227, 302, 312 (or 132), 502, 516, 542, 544, 551, 555, 557 and any one of the following: 560, 604, 614, 624, 644, 662. A minimum of twelve credits in chemistry must be earned at Wayne State University. In the first semester of the senior year, the student must enroll for at least two credits in Senior Research in Chemistry (Chemistry 599). 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 semester of the junior year in order to choose the field and staff member under whose direction this research will be carried out during the senior year.

Superior students may elect Chemistry 131, 132, 231, 232 in place of designated lower division courses. By reducing the number of required hours in chemistry, this will permit such students to elect chemical research (Chemistry 299) as early as the summer following the freshman year. Such students will also be allowed to register for Chemistry 599 in the junior year. With the consent of the Curriculum Committee, these students may write a B.S. Thesis and, upon satisfactory completion of other minimal requirements, may be certified to receive a degree of Bachelor of Science in Chemistry with Honors.

Recommended Program

First Year

Fall Semester

Chemistry 107 or	4
Chemistry 105 or	6
Chemistry 131	5
English 102	4
Mathematics 201	4
Group Requirements	3
Total:	15-17

Winter Semester

Chemistry 108 or	5
Chemistry 132	5
English elective	3
Mathematics 202	4
Group Requirements	3
Total:	15

Second Year

Chemistry 224	4
Chemistry 312	4
Mathematics 203	4
Physics 217	5
Total:	17

Chemistry 226	4
Chemistry 227	2
Chemistry 302	3
Physics 218	5
Group Requirements	3
Total:	17

Third Year

Chemistry 542	3
Chemistry 551	3
Mathematics 204	4
Language I	4
Life Science	
Group Requirement	3
Total:	17

Chemistry 544	3
Chemistry 555	2
Chemistry 516	3
Language II	4
Group Requirements	4
Total:	16

Fourth Year

Chemistry 502	2	Group Requirements	3
Chemistry 557	2	Electives	5
Chemistry 599	2-4	Total:	8
Group Requirements	4		
Advanced CHM Course	3		
Total:	13-15		

Substitutions in B.S. Curriculum: In recognition of the diverse backgrounds required for various careers in chemistry, students may petition the Chemistry Curriculum Committee for approval to substitute advanced courses numbered 500 or above from another discipline (such as physics, mathematics, biology, engineering) for the following B.S. requirements: 1) language; 2) Mathematics 204; 3) Chemistry courses numbered 500 or above except 516, 542, 544, and 555. Such requests for substitutions must be submitted in writing accompanied by a detailed statement of justification and a current transcript, and must be approved *prior* to registration in the alternate courses. Decisions regarding approval of such requests will be based on their legitimacy in terms of the student's professional goals.

General Requirements for Graduate Study

Every student entering the graduate program in chemistry will be required to take a series of entrance (proficiency) examinations covering the major disciplines of chemistry. These examinations, which cover standard undergraduate-level material, will be administered on announced dates in August, January, and May (prior to the start of each term). The examination in each area must be taken every time it is offered until a satisfactory level of proficiency is demonstrated in four of the five major fields. Demonstration of proficiency in each area may be achieved in any one of three ways: (a) by receiving a grade of 'pass' on the proficiency examination; (b) by receiving a grade of 'conditional pass' and completing a specified graduate course (700 level) in the area with a grade of A or B; or (c) by completing a specified remedial proficiency course (681, 682, 683, 684, 685) in the area with a grade of A or B. Full-time graduate students must establish proficiency in four areas within twelve months of commencing graduate study. Part-time graduate students must meet this requirement by the time they have completed twelve hours of graduate credit.

A final oral examination is required of all graduate degree candidates.

Master's Degrees

Admission may be granted to applicants who have completed one year of college physics, mathematics through calculus, and the equivalent of undergraduate semester credits in chemistry as follows: general chemistry (eight), organic chemistry (eight), physical chemistry (six), quantitative analysis (four), and advanced chemistry (three). Applicants specializing in biochemistry may substitute advanced biology for advanced chemistry.

A minimum undergraduate honor point average of 2.75 in chemistry and cognate science is required. Students who do not meet the requirements may petition the departmental committee on graduate study for probationary admission. Admissions under this program may include special requirements specified on the basis of the student's previous experience and training.

Candidacy must be established by the time twelve credits have been earned. The applicant must file a copy of the *Plan of Work* with the Graduate Officer.

- 299. Research Problems in Chemistry. Cr. 2-4**
Prereq: CHM 108 or 132 or equiv. and consent of departmental curriculum committee. Research projects under the direction of a senior faculty member. (F,W,S).
- 302. Intermediate Inorganic Chemistry I. (Lct: 3). Cr. 3**
Prereq: CHM 220 or 224 or equiv. Emphasizes chemistry of the main group elements and includes basic coordination chemistry of the transition metals. (W,S).
- 312. Analytical Chemistry. (Lct: 3; Lab: 4). Cr. 4**
Prereq: CHM 108 or equiv. No credit after CHM 132. Material fee as indicated in *Schedule of Classes*. Theoretical and practical aspects of elementary quantitative determinations involving chemical methods and elementary instrumentation. Equilibrium calculations and statistics. (F,S).
- 485. Frontiers in Chemistry. (CHM 885). Cr. 1 (Max. 2)**
Prereq: consent of adviser. 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. (F,W).
- 495. Seminar for Chemistry Majors. Cr. 1**
Prereq: consent of adviser. Research lectures: faculty, visiting scientists, and seminar participants. (F,W).
- 502. Intermediate Inorganic Chemistry II. Cr. 2**
Prereq: CHM 302 and 542 or equiv. Transition metal chemistry. Coordination compounds and organometallics. Bonding theories and reactivity. (F).
- 510. Survey of Analytical Chemistry. Cr. 3**
Prereq: CHM 220 or 224 or equiv. No credit for chemistry majors; no credit if taken after CHM 132 or CHM 312. Material fee as indicated in *Schedule of Classes*. For students in medical technology, nutrition, and life sciences. Emphasis on gravimetric, titrimetric, spectrophotometric, and potentiometric analysis of simple substances of clinical and biological interest. (W).
- 516. Instrumental Analytical Chemistry. Cr. 3**
Prereq: CHM 132 or 312, and 542 or equiv. Required of B.S. and ACS-approved B.A. majors. Application of modern instrumental methods to quantitative analysis. Methods that relate instrumental response to chemical concentrations or content. Calibration, data handling, and data evaluation. Emission, flame, infrared, Raman, fluorescence, and magnetic resonance spectroscopy. Mass spectrometry. Electrochemical methods. Chromatography. (W,S).
- 532. Physical Chemistry for Chemical Engineers I. Cr. 1**
Prereq. or coreq: CHE 230. Open only to chemical engineering students. Applications of thermodynamics to areas such as surface chemistry and electrochemistry, kinetic theory of gases. (F,W).
- 542. Physical Chemistry I. Cr. 3**
Prereq: CHM 108 or 132, MAT 201 and MAT 202 or equiv; prereq. or coreq: PHY 213 or PHY 217 or equiv. Chemical thermodynamics and applications; kinetic theory of gases. (F,W).
- 544. Physical Chemistry II. Cr. 3**
Prereq: CHM 542 or 532 or equiv. Required of B.S. and ACS-approved B.A. majors. Quantum theory, atomic and molecular structure, molecular spectroscopy, statistical mechanics, empirical and theoretical chemical kinetics. (F,W).
- 551. Chemical Synthesis Laboratory. Cr. 3**
Prereq: CHM 227 and 302 or equiv. Material fee as indicated in *Schedule of Classes*. Advanced techniques for the synthesis, purification and characterization of both organic and inorganic compounds. (F).
- 555. Analytical-Physical Chemistry Laboratory I. Cr. 2**
Prereq: CHM 132 or 312, and 542 or equiv.; PHY 214 or PHY 218 or equiv. Material fee as indicated in *Schedule of Classes*. Basic electrical and physical measurements. Principles of measurement. Fundamental investigations of thermodynamics. Fundamental studies and advanced applications of potentiometry. Principles and techniques of solution spectroscopy including UV-visible, IR, and fluorescence. (F,W).
- 557. Analytical-Physical Chemistry Laboratory II. Cr. 2**
Prereq: CHM 516 and 555 or equiv. Material fee as indicated in *Schedule of Classes*. Advanced electrical and physical measurements. Fundamental kinetic measurements. Principles and techniques of atomic and molecular spectroscopy, magnetic resonance, and mass spectrometry. (F).
- 560. Survey of Biochemistry. Cr. 3**
Prereq: CHM 220 or 224 or equiv. Protein structure and its relationship to function. Principles of enzyme catalysis. Allosteric regulation of protein function and enzyme catalysis. Pathways of carbohydrate, fat, and protein metabolism in eukaryotic organisms. Introduction to mechanisms of energy coupling and photosynthesis. Information transfer in living systems. Molecular biology. (W).
- 599. Senior Research in Chemistry. Cr. 2-4 (Max. 8)**
Prereq: consent of adviser. Must be elected by B.S. chemistry majors no later than first semester of senior year. Original investigation under the direction of a senior staff member. (F,W,S).
- 604. Chemical Applications of Group Theory. Cr. 3**
Prereq: CHM 502 and 544 or consent of instructor. Symmetry in chemical systems, development and use of character tables. Application of group theory to structure, bonding, spectroscopy and reactions. (F).
- 614. Advanced Analytical Chemistry. (Lct: 3; or Lct: 3; Lab: 4). Cr. 3-4**
Prereq: CHM 132 or 312 or equiv. Material fee \$45 if elected for four credits. Modern advanced analytical methods for inorganic and organic substances utilizing chemical methods and common instruments. Survey of the analytical chemistry of the periodic table. Useful background for analysis in research or industry. (F)
- 624. Organic Spectroscopy. (CHM 724). Cr. 3**
Prereq: CHM 226 or 232 or consent of instructor. Application of IR, NMR, UV, and mass spectrometry to the identification of organic compounds. Emphasis on interpretation of spectra. Consideration of fluorescence and phosphorescence emission spectroscopy. Recommended for students intending to do graduate or industrial work in organic chemistry. (W).
- 644. Computational Chemistry. Cr. 3**
Prereq: CHM 544. Computer programming and numerical methods with applications to the solution of chemical problems, instrument control, computer assisted instruction. (W).
- 662. Biochemistry I. (CHM 762). Cr. 3**
Prereq: CHM 220 or 224 or 231. Major metabolic pathways of carbohydrate, fatty acid, amino acid, and nucleotide synthesis and degradation. Pathways and mechanisms of energy generation. Allosteric regulation of enzyme activity. Can be used to satisfy the graduate proficiency requirement in biochemistry. (F).
- 663. Biochemistry Laboratory. (CHM 763). Cr. 3**
Prereq: CHM 662 and written consent of instructor. Basic biochemical experiments such as purification, characterization, and kinetics of enzymes. Laboratory work with spectrophotometry, fluorometry, polarography, and other methods in biological systems. Lectures on current methods frequently used in biochemical studies. (W).

664. Biochemistry II. (CHM 764). Cr. 3

Prereq: CHM 662. Nucleic acid structure and function. Mechanism and control of replication, transcription, and translation in prokaryotes. Genetic and hormonal regulation of biochemical pathways. Examination of macromolecular assemblies, their structures and functions (virus particles, microfilaments, microtubules, and muscle fibers). (W).

675. Glassblowing. Cr. 1

Prereq: consent of instructor. Offered for S and U grades only. Material fee as indicated in *Schedule of Classes*. Introduction to the fundamentals of glassblowing as applied to the repair and fabrication of scientific equipment in the research laboratory.

681. Proficiency in Analytical Chemistry. Cr. 2

Prereq: consent of Graduate Studies Committee. Fundamental principles and methods of analytical chemistry. Satisfies graduate proficiency requirement in analytical chemistry. (F,W)

682. Proficiency in Inorganic Chemistry. Cr. 2

Prereq: consent of Graduate Studies Committee. Fundamental principles of inorganic chemistry. Satisfies graduate proficiency requirement in inorganic chemistry. (F,W).

683. Proficiency in Organic Chemistry. Cr. 2

Prereq: consent of Graduate Studies Committee. Fundamental principles, structures, and mechanisms of organic chemistry. Satisfies graduate proficiency requirement in organic chemistry. (F,W).

684. Proficiency in Physical Chemistry. Cr. 2

Prereq: consent of Graduate Studies Committee. Fundamental principles of thermodynamics, kinetics, bonding, and molecular energy levels. Satisfies graduate proficiency requirement in physical chemistry. (F,W).

685. Proficiency in Biochemistry. Cr. 2

Prereq: consent of Chemistry Graduate Studies Committee. Survey of biochemistry with emphasis on protein structure and function, metabolism, and nucleic acids.

690. Directed Study. Cr. 1-4(Max. 8)

Prereq: undergrad., consent of adviser; grad., consent of adviser and graduate officer.

701. Descriptive Inorganic Chemistry. Cr. 3

Prereq: CHM 502 or consent of instructor. Reactions and reactivity of inorganic compounds. Emphasizes mechanistic and synthetic approaches to transition metal, organometallic, main group chemistry.

702. Physical-Inorganic Chemistry. Cr. 3

Prereq: CHM 502 and 604 or consent of instructor. Structure and properties of inorganic compounds. Ligand field theory, spectroscopy.

710. Theory of Analytical Chemistry. Cr. 3

Prereq: CHM 312 or equiv. Physicochemical principles applied to reaction equilibria and kinetics of analytical interest in a variety of solvent matrices; multistage separation theory; statistical theory applied to sampling, data treatment, and experimental design.

712. Electroanalytical Chemistry. Cr. 3

Prereq: consent of instructor. The theory and practice of modern voltametric methods as applied to analytical, kinetic, and mechanistic studies.

714. Advanced Instrumentation. Cr. 3

Prereq: CHM 516 or equiv. Advanced details of analytical chemical instrumentation including signal processing, electronics, optical design, mechanical considerations, and applications.

720. Organic Structures and Mechanisms. Cr. 3

Prereq: one year of organic chemistry with laboratory or consent of instructor. Structure and stereochemistry of organic molecules. Correlations between structure and chemical and physical properties. Reaction mechanisms.

722. Organic Reactions and Synthesis. Cr. 3

Prereq: CHM 720. Alkylation, condensation, and Grignard reactions; synthesis of acid derivatives; cycloadditions and unimolecular rearrangements. Scope and limitations of important synthetic methods of organic chemistry.

724. (CHM 624) Organic Spectroscopy. Cr. 3

Prereq: one year of organic chemistry with laboratory. Application of IR, NMR, UV, and mass spectrometry to the identification of organic compounds. Emphasis on interpretation of spectra. Consideration of fluorescence and phosphorescence emission spectroscopy. (F).

741. Classical and Statistical Thermodynamics. Cr. 3

Prereq: CHM 544 or equiv. The laws of thermodynamics with chemical applications, statistical methods of determining thermodynamic properties from molecular properties.

743. Chemical Kinetics. Cr. 3

Prereq: CHM 544 or equiv. Empirical analysis of reaction rates, theories of chemical kinetics, gas phase reactions, molecular collisions and non-thermal reactions, and kinetics in liquids.

747. Quantum Chemistry. Cr. 3

Prereq: CHM 544 or equiv. Theorems of quantum mechanics, approximation methods, solutions to simple atomic and molecular systems, electronic structure of many-electron atoms and molecules, chemical bonding.

748. Molecular Spectroscopy. Cr. 3

Prereq: CHM 747 or consent of instructor. Rotational, vibrational, and electronic spectra of diatomic and polyatomic molecules. Magnetic resonance, multiple-photon spectroscopy, and uses of lasers.

762. (CHM 662) Biochemistry I. Cr. 3

Prereq: CHM 220 or 224 or 231. Major metabolic pathways of carbohydrate, fatty acid, amino acid, and nucleotide synthesis and degradation. Pathways and mechanisms of energy generation. Allosteric regulation of enzyme activity. (F).

763. (CHM 663) Biochemistry Laboratory. Cr. 3

Prereq: CHM 662 and written consent of instructor. Basic biochemical experiments such as purification, characterization, and kinetics of enzymes. Laboratory work with spectrophotometry, fluorometry, polarography, and others in biological systems. Lectures on current methods frequently used in biochemical studies. (W).

764. (CHM 664) Biochemistry II. Cr. 3

Prereq: CHM 662. Nucleic acid structure and function. Mechanism and control of replication, transcription, and translation in prokaryotes. Genetic and hormonal regulation of biochemical pathways. Examination of macromolecular assemblies, their structures and functions (virus particles, microfilaments, microtubules, and muscle fibers). (W).

766. Biomolecular Interaction. Cr. 3

Prereq: CHM 220 or 224; and 542. The role of molecular interactions in determining the structure and reactivity of complex biological molecules. Experimental approaches for evaluating the nature of these interactions.

790. Directed Study. Cr. 1-4(Max. 12)

Prereq: written consent of adviser and graduate officer.

801. Chemical Catalysis. Cr. 3

Prereq: graduate standing or consent of instructor. Survey of basic principles of homogeneous and heterogeneous chemical catalysis.

809. Advanced Topics in Inorganic Chemistry. Cr. 1-3

Prereq: consent of instructor. The following topics offered in different semesters: inorganic synthesis and reactions; organometallic chemistry; bioinorganic chemistry; spectroscopy of inorganic compounds; inorganic reaction mechanisms; photochemistry.

819. Advanced Topics in Analytical Chemistry. Cr. 1-3

Prereq: CHM 710 or consent of instructor. The following topics offered in different semesters: computer interfacing, analytical spectroscopy, surface analysis, clinical analysis, analytical mechanisms, solution luminescence.

828. Advanced Topics in Organic Chemistry I. Cr. 1-3

Prereq: consent of instructor. The following topics offered in different semesters: recent developments in organic chemistry; synthetic strategy; chemistry of natural products including steroids, terpenes, alkaloids, carbohydrates, and proteins.

829. Advanced Topics in Organic Chemistry II. Cr. 1-3

Prereq: consent of instructor. The following topics offered in different semesters: physical-organic chemistry; kinetics of organic reactions; structure-reactivity correlations; reaction mechanisms; molecular orbital theory in organic chemistry; photochemistry; free radical chemistry; polymer chemistry.

849. Advanced Topics in Physical Chemistry. Cr. 1-3

Prereq: consent of instructor. The following topics offered in different semesters: chemistry of the solid state; electron spin resonance; lasers and nonlinear spectroscopy; molecular dynamics; molecular quantum mechanics; particle and photon scattering; photophysics and photochemistry; radiation and nuclear chemistry; theory of gas phase kinetics; x-ray crystallography.

868. Advanced Topics in Biochemistry I. Cr. 1-3

Prereq: consent of instructor. The following topics offered in different semesters: biophysical chemistry; enzyme chemistry; bioorganic chemistry.

869. Advanced Topics in Biochemistry II. Cr. 1-3

Prereq: consent of instructor. The following topics offered in different semesters: hormone biochemistry; molecular, cellular, and developmental biochemistry; membrane biochemistry.

870. Research in Chemistry. Cr. 1-16(Max. 30)

Prereq: consent of adviser.

880. Seminar in Analytical Chemistry. Cr. 1(Max. 4, M.S.; max. 6, Ph.D.)

Prereq: consent of adviser. Required of all graduate students in analytical chemistry. Weekly meetings of staff, invited guests, and qualified students to study recent developments. Each seminar member presents papers and enters into the discussion that follows.

881. Seminar in Organic Chemistry. Cr. 1(Max. 4, M.S.; max. 6, Ph.D.)

Prereq: consent of adviser. Required of all graduate students in organic chemistry. Weekly meetings of staff, invited guests, and qualified students to study recent developments. Each seminar member presents papers and enters into the discussion that follows.

882. Seminar in Inorganic Chemistry. Cr. 1(Max. 4, M.S.; max. 6, Ph.D.)

Prereq: consent of adviser. Required of all graduate students in inorganic chemistry. Weekly meeting of staff, invited guests, and qualified students to study recent developments. Each seminar member presents papers and enters into the discussion that follows.

883. Seminar in Physical Chemistry. Cr. 1(Max. 4, M.S.; max. 6, Ph.D.)

Prereq: consent of adviser. Required of all graduate students in physical chemistry. Weekly meetings of staff, invited guests, and qualified students to study recent developments. Each seminar member presents papers and enters into the discussion that follows.

884. Seminar in Biochemistry. Cr. 1(Max. 4, M.S.; max. 6, Ph.D.)

Prereq: consent of adviser. Required of all graduate students in biochemistry. Weekly meetings of staff, invited guests, and qualified students to study recent developments. Each seminar member presents papers and enters into the discussion that follows.

885. (CHM 485) Frontiers in Chemistry. Cr. 1 (Max. 3, M.S.; max. 6, Ph.D.)

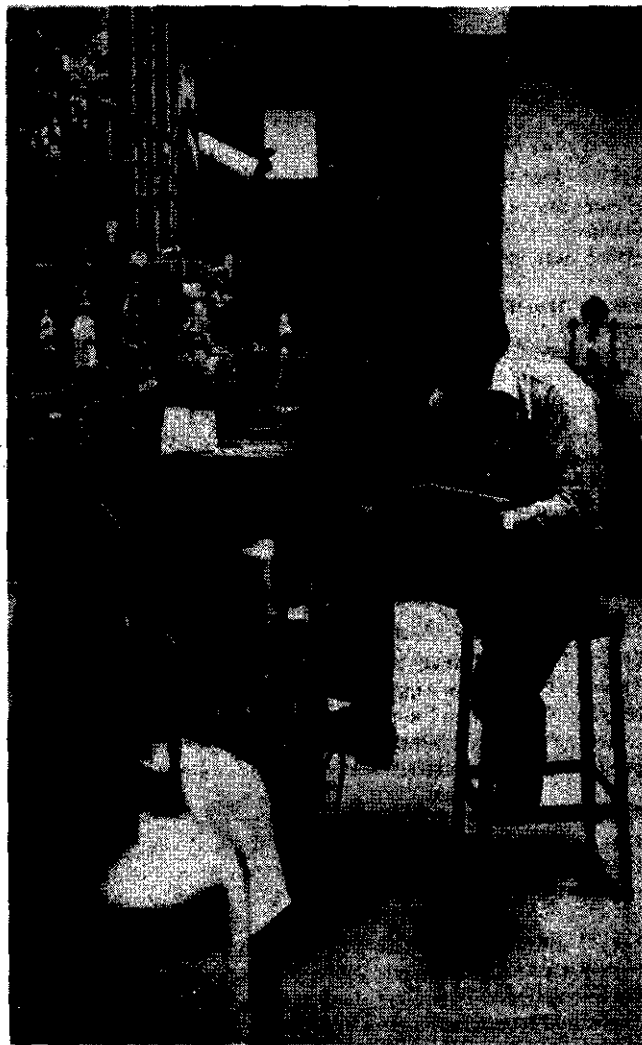
Prereq: consent of instructor. Offered for S and U grades only. Fields of fundamental chemistry now under investigation and not yet in the literature. Different field each time course is presented. Presented by invited specialists actively engaged in development of phase under consideration. (F,W)

899. Master's Thesis Research and Direction. Cr. 1-8(8 req.)

Prereq: consent of adviser.

999. Doctoral Dissertation Research and Direction. Cr. 1-16

Prereq: consent of doctoral adviser. Offered for S and U grades only.



CHICANO-BORICUA STUDIES

Office: Room 13, 631 Merrick

Director: Bernard Ortiz de Montellano

Associate Professor

Bernard Ortiz de Montellano

Lecturer

Isabel Salas

The Center for Chicano-Boricua Studies (CBS) is a multi-purpose unit engaged in teaching, research, and service. It offers courses, as well as a co-major program, which are socially and intellectually directed to the Latino experience in the United States. These studies are designed to serve the educational needs of in-coming Latino freshmen, and the educational interests of students who wish to increase their knowledge of Mexican Americans and Puerto Ricans in the United States; those who plan to enter a bilingual education program; and those who wish to complement their fields of study with a co-major in Chicano-Boricua Studies.

Curriculum and Co-Major

The following CBS core courses can partially fulfill College of Liberal Arts group requirements in the social sciences: CBS 201, 241, 242, 243, 311, 312; and in the humanities: CBS 210 and 211.

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 a co-major designation. Students admitted to this program must complete the core requirements and elect a minimum of eighteen credits from the elective courses. (NOTE: No more than twelve credits of CBS courses may be elected from the elective courses listed below.)

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 (18 credits)

	credits
CBS 201 — Introduction to Chicano-Boricua Studies.....	3
CBS 210 — Chicano Literature and Culture.....	3
CBS 211 — Puerto Rican Literature and Culture.....	3
CBS 241 — History of Mexico.....	3
CBS 242 — History of Puerto Rico and Cuba.....	3
CBS 243 — History of Latinos in the U.S.....	3

Elective Courses (18 credits)

CBS 311 — Urbanization and the Latino.....	3
CBS 312 — Politics in the Latino Community.....	3
CBS 351 — Pre-Columbian Mesoamerican Cultures.....	3
CBS 361 — Seminar in Latino Urban Problems I.....	2-6
CBS 362 — Seminar in Latino Urban Problems II.....	2-6
HIS 260 — Latin America to 1810.....	3
HIS 261 — Latin America since 1810.....	3
SPA 541 — Chicano, Cuban and Puerto Rican Spanish.....	3
ANT 651 — Latin American Prehistory.....	3

COURSES OF INSTRUCTION¹ (CBS)

141. Chicano-Boricua Practicum. Cr. 1 (Max. 2)

Prereq: consent of instructor. Open only to students in Chicano-Boricua program. Developing academic skills.

201. Introduction to Chicano-Boricua Studies. Cr. 3

Survey of social, economic and political problems and experiences of the Chicano and Puerto Rican communities in the United States.

210. Chicano Literature and Culture. Cr. 3

Examination of Chicano literature. Themes and figures in a social and historical context.

211. Puerto Rican Literature and Culture. Cr. 3

Examination of Puerto Rican literature. Themes and figures in a social and historical context.

241. History of Mexico. (HIS 341). Cr. 3

Historical development of Mexico and the Mexican people from the Spanish conquest to the present. Interaction of political, social, economic and cultural influences.

242. History of Puerto Rico and Cuba. (HIS 342). Cr. 3

Historical development of Puerto Rico and Cuba from the pre-Columbian period to the present. Interaction of political, social, economic and cultural influences.

243. History of Latinos in the United States, (HIS 313). Cr. 3

Historical development of people of Hispanic descent in the United States from the early nineteenth century to the present. Cultural conflict, interaction of political, social, and economic forces.

311. Urbanization and the Latino. Cr. 3

Migration, employment and urbanization of different Latino groups in the United States.

312. Politics and the Latino Community. Cr. 3

Political participation of the Spanish-speaking people from 1848 to the present; critical evaluation of political ideologies and issues.

341. (SPT 320) Introduction to Contemporary Latin American Theatre. Cr. 3

Historical study of contemporary theatre movement in Latin America; playwrights, theorists, directors, theatrical groups.

351. (ANT 551) Pre-Columbian Mesoamerican Cultures. Cr. 3

Prereq: ANT 210 or consent of instructor, or CBS 201. Survey of the history and characteristics of culture in Mesoamerica prior to colonization, from the Maya and Olmec to the Aztec.

361. Seminar in Latino Urban Problems I. Cr. 2-6

Prereq: consent of instructor. Contemporary urban problems of the Spanish-speaking people in the United States. Emphasis on research and field activities.

362. Seminar in Latino Urban Problems II. Cr. 2-6

Prereq: consent of instructor. Continuation of research projects and field work activities on contemporary urban problems of Spanish-speaking people.

¹ See page 633 for interpretation of numbering system, signs and abbreviations

COMPARATIVE LITERATURE

Office: English Department, 431 State Hall

Director: Alfred Schwarz

Staff: Faculty members 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

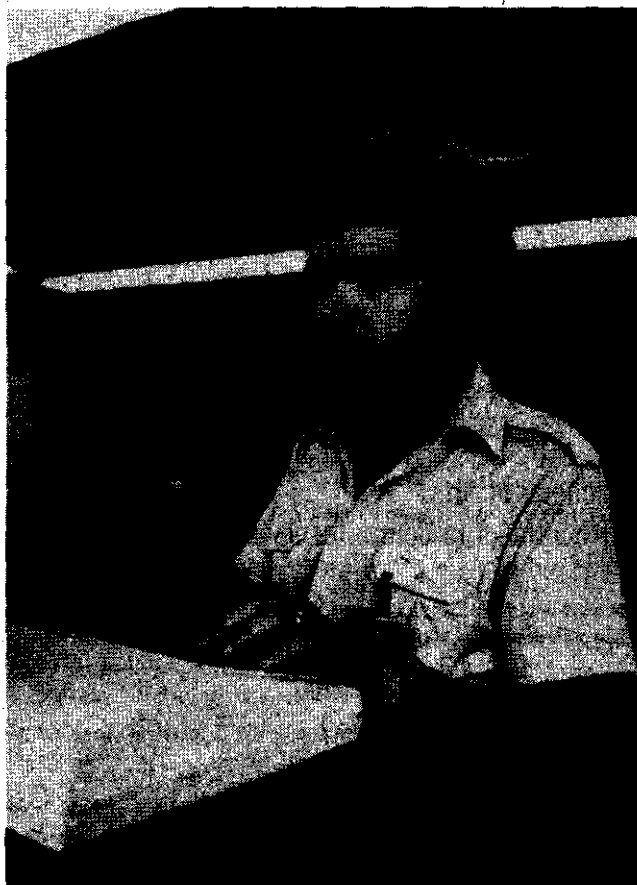
Plan B: Thirty credits in course work plus an essay.

Admission: All applicants must meet the general standards for admission to graduate study as determined by the University and stated elsewhere in this bulletin (page 18). In addition, the student must be prepared to do graduate work in two literatures, one of which may be English.

Candidacy must be established by the time twelve credits have been earned.

Degree Requirements: The student is required to study bibliography and methods of research, to take a seminar in literary theory and the comparative study of literature, to take course work in two literatures, and to take a course in translation. Each student completes his/her 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/her adviser.



COMPUTER SCIENCE

Office: 532 Mackenzie Hall

Chairperson: Mortesa A. Rahimi

Academic Services Officers: Linda Friedlander, Janet Hocking

Professors

Michael Conrad, Karel Culik, Mortesa A. Rahimi, Franklin H. Westervelt, Bernard P. Zeigler

Associate Professors

Charles F. Briggs, William Grosky, Ramesh Jain, Ronald J. Srodawa, Nai-Kuan Tsao, Seymour J. Wolfson

Assistant Professors

Carl Friedlander, Sadali Jayaramamurthy, Roberto Kampfner, Roy Rada

Lecturers

Eric Berglund, Massoud Farhany, Richard Hill, Barbara Romberger

Adjunct Professors

Edward Della Torre, Michael Marcotty

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

Doctor of Philosophy—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 Department teaches the principles of design 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 Department offers courses designed to supplement and support the educational programs of departments throughout the University.

Facilities

The University operates one of the largest and most modern academic computer facilities in the country. The Computing Center currently has two Amdahl 470V/6 systems each with 6.0 million bytes of semi-conductor memory, and several auxiliary solid state data storage devices. The operating system supports over 300 time-shared terminals as well as batch job submissions. The Center also supports

graphics and word processing.

The University is a participant of the Merit and Telenet Computer Networks. The Merit Network provides access to the computing facilities of the University of Michigan (Amdahl 470V/7) and Michigan State University (CSC Cyber 750). The Telenet Network allows the Wayne State computer system to be accessed throughout the country.

The Department's Intelligent Systems Laboratory provides DEC and Tektronix equipment for research in the areas of artificial intelligence, computer vision, computer graphics and pictorial databases.

The Digital Systems Laboratory provides DEC, HP and Tektronix equipment for the design and construction of microprocessor-based devices.

In addition to the general University interactive facilities, the Department owns a large number of terminals for the exclusive use of its faculty and students.

Introductory Courses

The Department of Computer Science offers a number of courses introducing students to basic computer and computing concepts. Some of these courses also serve as prerequisites for more advanced study in computer science. Among these, CSC 102 is the preferred introduction and is generally required before taking more advanced courses. Students with some computing experience (e.g., CSC 100 or a year of computing in high school) may begin with CSC 202. CSC 100 is an introductory course for business majors; students who intend to major or minor in computer science will not normally take this course, however, students may begin with CSC 100 followed by CSC 202 instead of beginning with CSC 102. Transfer students with an extensive background in programming, and experienced with a language at least as complex as FORTRAN, but not having PL/I experience, may take CSC 207 to familiarize themselves with PL/I. CSC 105, 206, and 208 are primarily intended for engineering students. CSC 501, 502, and 504 are intended for graduate students as indicated by their course descriptions.

Students are urged to consult a Departmental adviser for additional information regarding these courses.

Undergraduate Programs

The Computer Science Department offers programs for students with widely varying interests: Bachelor of Science in Computer Science, Bachelor of Arts (with a major in computer science), Bachelor of Science (with a second major in computer science), and a Minor in Computer Science.

The Bachelor of Science in Computer Science has been designed to provide a strong academic foundation in the area of computer science and information processing. The courses required provide a good general background in these areas. Mathematics is required to a level commensurate with prerequisites of 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. This degree

* Mathematics majors electing Option D are excluded from electing Computer Science as another major.

program requires fewer computer science and mathematics courses than the Bachelor of Science degree and allows 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 Bachelor of Science in Computer Science in a reasonable length of time.)

The Bachelor of Arts program provides both a strong foundation in computer science and the minimum level of mathematics required as background for the advanced courses. Graduate study in computer science usually requires more mathematics than is required for this degree; students planning to earn a graduate degree in computer science are, therefore, advised to take as much additional mathematics as their programs allow.

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 Bachelor of Arts program with slightly more emphasis on mathematics and the mathematical application of computers.

The minor program is designed to provide a background of computers and computing knowledge for students who are majoring in other fields of study and who anticipate the involvement of computers in their work.

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 201, 202, 203, 204, 221, and 506.
3. Introductory programming courses equivalent to Computer Science 102 and 20.
4. At least thirty-two credits in Computer Science courses beyond the introductory courses including the following:
 - a. Computer Science 370, 441, 450 or 470, 520, 531, and 541.
 - b. At least one additional Computer Science course numbered 510 or above.
 - c. Additional Computer Science electives to complete the required number of credits selected from courses numbered 210 or above.

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 201, 221, and 506.
3. Introductory programming courses equivalent to Computer Science 102 and 203.
4. At least twenty-four credits in Computer Science courses beyond the introductory courses including the following:
 - a. Computer Science 370, 441, 520, 531 and 541.
 - b. At least one additional Computer Science course numbered 510

or above.

c. Additional Computer Science electives to complete the required number of credits selected from courses numbered 210 or above.

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 201, 202, 221, and 506.

3. Introductory programming courses equivalent to Computer Science 102 and 203.

4. At least twenty-four credits in Computer Science courses beyond the introductory courses including the following:

- Computer Science 370, 441, 520, 531, and 541.
- At least one additional Computer Science course numbered 510 or above.
- Additional Computer Science electives to complete the required number of credits selected from courses numbered 210 or above.

Minor in Computer Science

A knowledge of introductory programming equivalent to Computer Science 102 and 203 is prerequisite to the requirements for a Minor in Computer Science. Completion of the Minor requires fourteen credits in Computer Science courses numbered 210 or above (excluding CSC 501, 502, 503, 504, or 505) and including Computer Science 370 and 441. Students who wish to modify the Minor program to satisfy special needs must contact one of the Departmental undergraduate advisers for approval of any substitutions in the course requirements.

Cooperative Program

Students who wish to enrich their education with practical computer science experience may enroll in the Cooperative Program. In this program, full-time study terms are alternated with full-time work assignments in cooperating industries. The student must be majoring in computer science. Usually students enter the program 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 or she must enroll the following term in Computer Science 495, Professional Practice in Computer Science. A student may enroll for no more than one course with the approval of the College Co-op Coordinator during those terms in which he/she is on a work assignment. A report covering each work assignment is required of the student and performance on the job is rated by the 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 Service.

Master's Programs

The Department of Computer Science offers the degrees of Master of Arts and Master of Science with a major in computer science. Students with widely varying backgrounds and goals will find plans of study and research designed to meet their needs.

The graduate degrees in computer science are distinguished on the basis of the relative breadth and depth of their programs. The Master of Arts degree program offers students some experience in many areas of computer science. The Master of Science degree is awarded to students who pursue a more concentrated range of topics.

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 plan of study directed toward a specific goal. In particular, elections of courses should never be made without prior consultation and approval of the adviser.

Admission to Master's Programs

There are several general University requirements which must be satisfied. All students seeking entrance to this computer science program must initially meet those requirements. See the section on Liberal Arts graduate information and the Graduate School section of this bulletin.

In addition, in order to enter the Master of Arts or Master of Science degree programs, the applicant must have:

- A knowledge of computer science equivalent to that obtained in Computer Science 203, 370, and 441.
- Mathematical preparation equivalent to that obtained from Mathematics 201, 221, and 506.
- Students planning to pursue some of the more technical courses may find it necessary to have additional preparation in mathematics and/or computer science. The student should make a careful examination of prerequisites of advanced courses in the student's areas of special interest before seeking admission.

Upon admission, each student is assigned an adviser for guidance and direction in meeting degree requirements and academic goals. When the thesis or essay research begins, a student may request another adviser whose interests lie in the proposed area of research. Forms for this purpose are available in the Department Office.

Master's Degrees

All graduate degrees are governed by general University regulations (see Graduate School 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 interrelations of computer science with other specific fields. This interest is encouraged. Students will be allowed to elect up to eight credits of cognate course work toward their computer science degree. Cognate 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:

- Thirty-two credits earned in accordance with Plan A or thirty credits in accordance with Plan B. These plans are described under 'B' below.

2. Election of Computer Science 520, 531, and 541 if not completed previously. These courses may neither be applied to the credits needed for graduation nor appear on a *Plan of Work*.

3. Election of one course from Computer Science 621, 652, 658, or 661 if an equivalent has not been completed previously.

4. Election of at least two courses in one area of specialization of computer science (see page 273). The intent is to insure that the student has some depth within an area of specialization.

5. Election of at least one course in each of two other areas of specialization. The intent is to insure that the student has some breadth across the areas of specialization within computer science.

6. By the time twelve credits have been earned, a *Plan of Work* should be developed with the student's adviser and submitted to the Chairperson of the Computer Science Graduate Committee. Upon approval of the *Plan of Work* by that committee and the Dean of Graduate Studies, the student will be considered a degree candidate. The student will not be allowed to take more than twelve credits in the master's program unless candidacy has been established. If the student has not graduated after two years as a candidate, the *Plan of Work* must be reviewed for possible adjustment.

7. The student may follow either the degree requirements in force at the time of admission or those in force at the time of filing the *Plan of Work*. The choice must be stated when filing the *Plan of Work*.

8. In the *Plan of Work* the student will state his/her choice of one of the following options:

Plan A: Completion of a thesis for eight credits with the remaining credit earned in course work.

The student's thesis work is directed by his/her adviser together with a committee of two additional faculty members. All committee members must read and approve the thesis, which must be presented at a public session prior to final acceptance.

Theses are technical papers describing the original creative work of the author. Topics include original research at the Master's level and in-depth analysis, comparison, or extension to the work of others. (See the ACM journals and transactions for model topics and stylistic conventions.)

Plan B: Completion of an essay for three credits with the remaining credit earned in course work.

The student's essay is directed by his/her adviser together with one additional faculty member. Both must read and approve the essay, which must be presented in a 10-15 minute public lecture. Public lectures will be scheduled each semester.

Essays are technical papers which are the original work of the author. Topics include the survey, comparison, or review of a subject. (See the ACM Computing Surveys for model topics and stylistic conventions.)

The choice of plan and committee membership must be approved by the Computer Science Graduate Committee.

Master of Science

The requirements for the Master of Science degree with a major in computer science are as follows:

1. Thirty-two credits earned in accordance with *Plan A* described as item '8' under Master of Arts (see above).

2. Election of Computer Science 520, 531, and 541 if not previously completed. These courses may neither be applied to the credits needed for graduation nor appear on a *Plan of Work*.

3. Election of one course from Computer Science 621, 652, 658, or 661 if an equivalent has not been previously completed.

4. Election of at least three courses in one area of specialization in computer science. Suggested areas of specialization are listed on page 273. The intent is to insure that the student has sufficient depth within an area of specialization.

5. Election of at least one course from another area of specialization. The intent is to insure that the student has some breadth across the areas of specialization within computer science.

6. By the time twelve credits have been earned, a *Plan of Work* should be developed with the student's adviser and submitted to the Chairperson of the Computer Science Graduate Committee. Upon approval of the *Plan of Work* by that committee and the Dean of Graduate Studies, the student will be considered a degree candidate. Upon approval, the student will be considered a degree candidate. The student will not be allowed to take more than twelve credits in the master's program unless candidacy has been established. If the student has not completed the degree after two years as a candidate, the *Plan of Work* must be reviewed for possible adjustment.

7. The student may follow either the degree requirements in force at the time of admission or those in force at the time of filing the *Plan of Work*. The choice must be stated when filing the *Plan of Work*.

8. Completion of Plan A, consisting of a thesis for eight credits with the remaining credit earned in course work.

Doctor of Philosophy

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

Admission Requirements: All applicants are expected to possess a bachelor's degree from an accredited institution; a master's degree or equivalent in computer science or in a closely related field; and potential for critical and creative research as demonstrated by transcripts of previous course work or three letters of recommendation.

Degree Requirements: All applicants for the degree of Doctor of Philosophy with a major in computer science are urged to study the general University requirements for this degree and to plan their programs so that these requirements are fulfilled in the proper order and at the proper time. A Departmental handbook providing detailed description of the requirements is available.

The Computer Science Ph.D program is built around a primary field, two secondary fields, and an outside minor. The established fields are listed on page 273. It is recognized these group selections may not suit the needs of all students, hence, in consultation with his/her adviser, a student is free to propose other coherent groups of courses which may be acceptable alternatives and referred to as *ad hoc* fields. Listed below are the basic procedures for meeting the degree requirements.

1. **Assignment of an adviser:** Upon admission, the Ph.D applicant is assigned an adviser. Should a change of adviser be required for a closer coordination of interests, the applicant can petition the Department requesting a reassignment. Forms for this purpose are

available in the Department Office.

2. *Selection of an Individual Program:* In consultation with the adviser, the applicant chooses a primary, secondary and outside minor field and files a *Plan of Work*. The area of specialization requirements in course work are as follows:

a. **PRIMARY FIELD:** This field constitutes the student's major research area. Requirements in the primary field are: 1) election of at least four courses at or above the 700 level; and 2) election of at least two courses at or above the 500 level.

b. **TWO SECONDARY FIELDS:** These fields provide breadth in the general study area and support the primary field. Requirements in each secondary field are: 1) election of at least two courses at or above the 700 level; and 2) election of at least one course at or above the 500 level.

c. **OUTSIDE MINOR:** The minor consists of at least eight credits or above at the 500 level selected from a single department in another discipline.

d. **THIRTY CREDITS OF CSC 999, Doctoral Dissertation Research and Direction,** involving independent research under the direction of the student's adviser.

Before the completion of forty credits beyond the bachelor's degree (approximately one year after admission to the Ph.D program) the *Plan of Work* should be submitted to the Computer Science Graduate Committee who will then forward it to the Graduate School.

3. *Selection of Dissertation Topic:* The dissertation topic is selected in consultation with the adviser and other faculty members.

4. *Selection of a Doctoral Committee:* Prior to taking the Qualifying Examination and beginning dissertation work, the student must establish a Doctoral Committee. This committee directs the Oral Examination and the Dissertation requirements. The committee is composed of four faculty members including the student's adviser (chairperson of the committee); two Computer Science graduate faculty members; and one graduate faculty member from the department-offering the student's outside minor.

5. *Final Selection of the Dissertation Topic:* When a major part of the course work outlined in the *Plan of Work* has been completed, the applicant, together with the adviser and other doctoral committee members, begins a preliminary Doctoral Dissertation Outline and Prospectus. The Prospectus describes the proposed research, stating the problem, its scope, prior research results, the kinds of sources and resources required, the methodology to be used, and a description of the hypothetical results expected from the research. Upon approval of the preliminary Prospectus by the Computer Science Graduate Committee, the applicant applies to the Department to take the Qualifying Examination.

6. *Qualifying Examination:* This examination consists of two parts: 1) a written examination administered by the Graduate Committee (usually early in fall and winter semesters) which covers material in the declared primary and secondary fields; and 2) an oral examination administered by the student's Doctoral Committee covering material from the *Plan of Work*, preliminary Dissertation Outline and Prospectus, and any other material the Committee may deem relevant.

7. *Execution of the Research:* After successful completion of the Qualifying Examination, the applicant submits a formal Doctoral Dissertation Outline and Prospectus to the Graduate School. After the research topic has been approved by the Dean of Graduate Studies, the student is granted Ph.D. candidacy and is expected to concentrate on the research necessary to complete the plan in the Prospectus. This research is conducted under the supervision of the student's adviser and Doctoral Committee.

8. *Completion of the Dissertation:* When the candidate, adviser and Doctoral Committee are satisfied that the research required in carrying out the Prospectus is complete, the candidate presents the research in the form of a manuscript. This manuscript must conform to the highest standards of originality, accuracy, significance, methodology and correctness of style in describing the original research.

9. *Public Lecture Presentation:* After approval of the manuscript, the candidate arranges a Public Lecture Presentation at which time the dissertation is presented and defended.

After formal approval of the presentation and submission of the dissertation to the Graduate School, the Ph.D. candidate will have completed all requirements for the degree of Doctor of Philosophy.

Assistantships and Fellowships: Graduate teaching or research assistantships and fellowships are available each year to qualified students. Those interested in applying should contact the Department of Computer Science by March 15 of the preceding academic year; later applications will be considered only on the basis of available positions.

— Areas of Specialization

The following are approved areas of specialization in Computer Science master's and doctoral programs. *Ad hoc* areas may be included on an individual basis if sponsored by two faculty members and approved by the Computer Science Graduate Committee.

Students may not use the same course to satisfy more than one area of specialization program requirement.

Courses marked by an asterisk (*) normally cannot be used as part of a graduate degree program in Computer Science.

Artificial Intelligence: Computer Science 680, 682, 683, 685, 686, 687, 780, 782, 783, 786, 880.

Computer Architecture and Operating Systems: Computer Science 531*, 537, 541*, 542, 575, 632, 638, 640, 687, 723, 731, 740, 742, 745, 840.

Information Storage and Retrieval: Computer Science 571, 572, 575, 771, 773, 775.

Numerical Methods, Simulation, and Modeling: Computer Science 516, 661, 662, 663, 665, 682, 719, 761, 762.

Programming Languages and Compiler Design: Computer Science 520*, 621, 622, 652, 720, 722, 723, 725, 745.

Software Methodology: Computer Science 511, 515.

Theoretical Computer Science: Computer Science 652, 654, 658, 685, 720, 722, 724, 745, 751.

COURSES OF INSTRUCTION¹ (CSC)

100. Introduction to Computer Science. Cr. 3

Prereq: placement out of MAT 095. No credit after any other programming course. Material fee as indicated in *Schedule of Classes*. Survey of computer science on an elementary level. Introduction to using a terminal and use of the computer in BATCH. Problem solving; analysis, structured algorithm development and

¹ See page 633 for interpretation of numbering system, signs and abbreviations

programming, testing. Students run several problems on a computer in the BASIC language using arrays, functions and subroutines. File construction and manipulation using MTS and the editor.

102. Computer Science I. Cr. 2-4

Prereq: placement out of MAT 180. Only two credits after CSC 100. Material fee as indicated in *Schedule of Classes*. Introduction to computer science and programming using MTS and PL/I.

105. Computer Science Laboratory for Engineers. Cr. 1-2

Prereq: MAT 180. Offered for S and U grades only. Credit only in College of Engineering. Offered for one credit by permission of chairperson. Material fee as indicated in *Schedule of Classes*. An informal introduction to computing; projects related to areas of interest.

202. Condensed Introduction to PL/I. Cr. 2

Prereq: placement out of MAT 180; CSC 100 or CSC 105 or 206 or equiv. No credit after CSC 102. Material fee as indicated in *Schedule of Classes*. An accelerated version of CSC 102 for students with prior computing experience.

203. Computer Science II. Cr. 4

Prereq: CSC 102 or equivalent knowledge of programming with PL/I. Material fee as indicated in *Schedule of Classes*. Advanced programming concepts using PL/I.

205. Pascal. Cr. 2-4

Prereq: placement out of MAT 180. Only two credits allowed if taken after any other computer science programming course. Material fee as indicated in *Schedule of Classes*. Introduction to problem solving using the Pascal language; structured programming, types, procedures, pointers and other constructs of Pascal.

206. Introduction to Digital Computing with FORTRAN. Cr. 3

Prereq: placement out of MAT 180. No credit after CSC 102 or CSC 105 or CSC 202 or CSC 207. Material fee as indicated in *Schedule of Classes*. 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 MTS command language.

207. Introduction to Programming with PL/I. Cr. 4

Prereq: placement out of MAT 180; at least two semesters of programming in COBOL, FORTRAN, or equiv. Material fee as indicated in *Schedule of Classes*. Intensive course in PL/I for students with extensive prior programming background in other languages.

208. Computer Concepts for Engineers. Cr. 4

Prereq: CSC 105. Material fee as indicated in *Schedule of Classes*. Programming languages, description of a computing system, interrelationships in functional units, input preparation, problem-solving and algorithm design applications. Introduction to data structures, storage methods and data base systems.

209. Computers and Mankind. Cr. 2-3

Offered for two credits to lecture students; offered for three credits to students electing lecture and laboratory; material fee \$15 if elected for three credits. Basic concepts of computing including organization capability, control of computers, their use in the management of information, and the study of complex processes through simulation; application in various areas of government, industry, education and the arts; future direction of computing; and the impact of computers on society.

210. Introduction to Business Data Processing. Cr. 3

Prereq: CSC 100 or 202 or equiv. Material fee as indicated in *Schedule of Classes*. Problems in business applications: editing, transaction analysis, file update, report generation, tape and disk files. Structured use of the COBOL language.

320. Survey of Higher Level Languages. Cr. 3

Prereq: CSC 203 or equiv. Material fee as indicated in *Schedule of Classes*. Three languages are studied briefly: SNOBOL, LISP and APL. The languages selected are all "classical," developed around 1960, but have features making them radically different from the BASIC, PL/I, FORTRAN, COBOL group. Formulation and coding of non-numerical algorithms for digital computers using these languages.

370. Introduction to Data Structures. Cr. 3

Prereq: CSC 203 or equiv., MAT 506. Material fee as indicated in *Schedule of Classes*. Strings, lists, trees and graphs; hashing techniques; internal searching and sorting; storage management and other applications; efficiency considerations.

441. Introduction to Computer Systems. Cr. 4

Prereq: CSC 203 or equiv. Material fee as indicated in *Schedule of Classes*. Machine languages and basic assembler languages for IBM 370 style computers; internal data representations and arithmetic: character, integer decimal, floating point; input and output using channels; storage protection; privileged operations; interrupts.

450. Introduction to Theoretical Computer Science. Cr. 3

Prereq: CSC 370 and MAT 506. Concepts of computation via finite automata, Turing machines, and decidability; formal languages; complexity theory; program correctness; topics from artificial intelligence.

460. Introduction to Numerical Methods. Cr. 3

Prereq: CSC 203 or equiv., MAT 204. Material fee as indicated in *Schedule of Classes*. Numerical methods in the solution of equations and systems; interpolation and approximations; differentiation and integration; ordinary differential equations.

470. Introduction to File Structures. Cr. 3

Prereq: CSC 370. Material fee as indicated in *Schedule of Classes*. Characteristics of secondary memory devices; the representation of information and various techniques for searching and sorting in secondary memory; introduction to index design and query processing.

495. Professional Practice in Computer Science. Cr. 1(Max. 4)

Prereq: junior or senior standing and consent of the co-op coordinator. Offered for S and U grades only. Open only to students in Computer Science Co-op Program. Review of computer science practical experiences resulting from participation in the cooperative work-study program.

501. Computers and Research. (UP 662). Cr. 3

Prereq: placement out of MAT 095. No credit after any other programming course; no credit for computer science minors or majors. Material fee as indicated in *Schedule of Classes*. Introduction to computing, data processing, and computer utilization for research; computer languages, library programs and their use; job control languages.

502. Computers and Business Research. Cr. 2

Prereq: placement out of MAT 095 and admission to a graduate program. Credit only in School of Business Administration. Material fee as indicated in *Schedule of Classes*. Survey of computer science on an elementary level. Introduction to using a terminal and use of the computer in BATCH. Problem solving: analysis, structured algorithm development and programming, testing. Students run several problems on a computer in the BASIC language using array functions and subroutines. File construction and manipulation using MTS and the editor.

503. Computers in Statistical Data Analysis. Cr. 3

Prereq: some computer terminal experience; one course in statistics. No credit for computer science minors or majors. Material fee as indicated in *Schedule of Classes*. Basic concepts of correlation, testing hypotheses; chi square, t and f statistics; linear regression; statistics

packages such as SPSS, SAS, or BMD; understanding and interpreting the output.

504. Introduction to Programming. Cr. 4

Prereq: graduate standing and placement out of MAT 180. Only two credits after any other programming course; no credit for computer science minors or majors. Material fee as indicated in *Schedule of Classes*. Introduction to programming using PL/I.

505. Computers in Scientific Applications. Cr. 3

Prereq: CSC 102 or 105 or equiv. No credit for computer science minors or majors. Material fee as indicated in *Schedule of Classes*. Subprograms; modular program design; introduction to computer graphics and the use of the calcomp plotter; use of scientific subroutine packages in matrix operations, interpolation sums and limits of series, and generation of random numbers.

511. Advanced Software Development. Cr. 3

Prereq: CSC 370. Material fee as indicated in *Schedule of Classes*. Selection of programming language; debugging techniques and tools; program maintenance; software economics; team programming and its application to projects; software life cycle.

515. Administration of Computing Centers. Cr. 3

Prereq: consent of instructor. Organization; pricing algorithms; equipment evaluation and procurement; reliability; management problems peculiar to computing centers.

516. Discrete System Simulation. Cr. 3

Prereq: CSC 203 or equiv. Material fee as indicated in *Schedule of Classes*. Discrete simulation, its tools and techniques; formulation, implementation and validation of models; applications.

520. Principles of Programming Languages. Cr. 4

Prereq: CSC 370 and 441. Syntax and semantics of programming languages, variables, block structure, expressions, control structures, procedures, functions, parameter transmission, data types and their specification, data structure, exceptional conditions and concurrent processing.

521. Artificial Intelligence Programming with LISP. Cr. 2

Prereq: CSC 370. Material fee as indicated in *Schedule of Classes*. Primarily for artificial intelligence students. Introduction to the LISP language; formulation and coding of non-numerical algorithms for digital computers using this language.

531. Computer Organization. Cr. 4

Prereq: CSC 441. Basic logic design with MSI and LSI; organization and structuring of major hardware components of computers; mechanics of information transfer and control within digital computer systems.

537. (ECE 562) Mini- and Microcomputers. Cr. 4

Prereq: CSC 531 or ECE 461. Material fee as indicated in *Schedule of Classes*. Treatment of the architecture and organization of microcomputers. The configuration, application and programming of several microcomputers. Design and applications of minicomputers. Processor organization, instruction set selection, memory structure and addressing methods, controller designs, hardware arithmetic functions, I/O interface, peripheral devices, applications and required software systems.

541. Computer Operating Systems. (ECE 564). Cr. 4

Prereq: CSC 370 and 441 or ECE 560. Material fee as indicated in *Schedule of Classes*. Hardware architecture for operating systems: privileged instructions, protection, interrupts, input and output via channel programming: buffering; services provided by operating systems; batch, multiprogramming and time-sharing systems; memory management including virtual memory; concurrent processing: deadlocks, mutual exclusion, and synchronization; job and processor scheduling; device control and virtual devices.

542. Data Communications. Cr. 3

Prereq: CSC 541 and MAT 221. Material fee as indicated in *Schedule of Classes*. Communication line characteristics; modems; synchronous and asynchronous line protocols; error detection and correction schemes, including polynomial codes; basics of multiplexing and concentration; elements of information theory, Huffman codes; considerations in the design of data communication systems.

571. Introduction to Database Management Systems. Cr. 3

Prereq: CSC 470 or consent of instructor. Material fee as indicated in *Schedule of Classes*. The architecture of a general database management system; the entity-relationship data model; physical organization of database; the network, hierarchical and relational approaches to the design of a database management system; examples of existing systems.

572. Survey of Database Management Systems. Cr. 3

Prereq: CSC 571. Material fee as indicated in *Schedule of Classes*. Case studies of existing database management systems of the hierarchical, network and relational types; their physical organization, query languages, interfaces to programming languages and schemes for data security, integrity and reliability.

575. Direct Access Storage Devices. Cr. 3

Prereq: CSC 470. Material fee as indicated in *Schedule of Classes*. Access characteristics of direct access storage devices; properties of various storage media and the effect upon access characteristics; file organization; relationship between access characteristics and file organizations; security and control.

590. Directed Study. Cr. 1-4(Max. 8)

Prereq: undergrad., consent of adviser, written consent of chairperson; grad., consent of adviser, written consent of chairperson and graduate officer. Individual study as agreed on by student and supervising faculty. Primarily for material not covered in regular courses.

621. Structure of Compilers I. Cr. 3

Prereq: CSC 520. Material fee as indicated in *Schedule of Classes*. Lexical analysis; syntactic analysis; syntactic error detection and correction; symbol tables; intermediate representation of programs.

622. Structure of Compilers II. Cr. 3

Prereq: CSC 441 and 621. Material fee as indicated in *Schedule of Classes*. Generation of intermediate code; storage allocation; global and local optimization; object code generation.

632. (ECE 665) Fault-Tolerant Computer Architecture. Cr. 4

Prereq: CSC 531 or ECE 461. Survey of current literature in fault-tolerant design and fault diagnosis of combinational circuits. Use of redundancy in the form of majority logic or interwoven logic to prevent errors in spite of certain types of faults. Consideration of graphical and calculus methods for determining fault-finding experiments. Multi-valued and threshold logic.

638. Microprogrammed Computer Design. (ECE 565). Cr. 4

Prereq: CSC 531 or ECE 461. Material fee as indicated in *Schedule of Classes*. Introduction to microprogramming techniques and discussion of their implementations. Consideration of control word formats and microinstruction coding. Use of microprogrammable computers to emulate other computers. Implementation of microprogramming, including control-store timing, capacity and cost.

640. Design of Operating Systems. Cr. 3

Prereq: CSC 541. Material fee as indicated in *Schedule of Classes*. Design of contemporary operating systems; system control blocks; concurrent processes; scheduling algorithms; file systems; memory management.

652. Automata Theory. Cr. 4

Prereq: CSC 520; 450 recommended. Material fee as indicated in *Schedule of Classes*. Finite state machines; automata; determinism and indeterminism; regular expressions; grammars and formal languages; Chomsky's hierarchy; parsing; pushdown automata; Turing Machines.

654. Computer Graph Structures. Cr. 3

Prereq: CSC 520. Material fee as indicated in *Schedule of Classes*. Basic graph structures, undirected and directed. Graphs and multigraphs; computer representation of graph structures; primary relations; flow diagrams; data flow schemes; data structures.

658. Analysis of Algorithms. Cr. 3

Prereq: CSC 370. Material fee as indicated in *Schedule of Classes*. Asymptotic and non-asymptotic complexity measures of algorithms and programs; design of efficient algorithms; complexity measures of important algorithms (searching, sorting, graph algorithms), classes of P and NP, intractable problems.

661. Computational Algorithms: Analysis. Cr. 3

Prereq: MAT 204 and CSC 203 or equiv. Material fee as indicated in *Schedule of Classes*. Floating point arithmetic; use of mathematical software packages; interpolation; numerical integration and differentiation; solution of non-linear equations; solution of ordinary differential equations.

662. Computational Algorithms: Linear Algebra. (ECE 502). Cr. 4

Prereq: CSC 202 or 206 or equiv. and MAT 204 for computer science students; CHE 304 for engineering students. Material fee as indicated in *Schedule of Classes*. Floating point arithmetic; use of mathematical software packages; direct methods and iterative methods for linear systems of equations; error analysis and norms; computation of eigenvalues and eigenvectors; least square problems; and related topics.

663. Computational Algorithms: Optimization. Cr. 3

Prereq: CSC 662 or MAT 586 or MAT 577. Material fee as indicated in *Schedule of Classes*. Computer methods of solution in optimization theory; systematic and random search techniques; linear, nonlinear and dynamic programming; gradient methods.

665. Continuous System Simulation. Cr. 3

Prereq: CSC 203 or equiv. and MAT 204. Material fee as indicated in *Schedule of Classes*. Comprehensive survey of the application of digital computers to the simulation of systems governed by ordinary differential equations and partial differential equations.

680. Artificial Intelligence I. Cr. 3

Prereq: CSC 370. Material fee as indicated in *Schedule of Classes*. Heuristic programming; state-space search techniques; general problem solving systems; theorem proving procedures for propositional and first-order logic; knowledge representation using production systems and semantic nets; applications.

682. Introduction to Adaptive Systems. Cr. 3

Prereq: CSC 680, MAT 221. Material fee as indicated in *Schedule of Classes*. 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.

683. Introduction to Pattern Recognition. Cr. 3

Prereq: MAT 221, CSC 203 or equiv. Material fee as indicated in *Schedule of Classes*. Bayes decision theory; parametric and non-parametric methods; linear discriminant functions; cluster analysis and unsupervised learning; feature selection; syntactic methods in pattern recognition.

685. Analysis of Natural Language. Cr. 3

Prereq: CSC 652. Material fee as indicated in *Schedule of Classes*. Cognitive part of natural language; cognitive categories; syntax, semantics, and programmatic of scientific extension of natural languages; language analysis; grammars, transformations, semantic networks and translation.

686. Digital Image Processing and Scene Analysis. Cr. 3

Prereq: senior or graduate standing; consent of instructor. Methodologies of digital image processing; computer-based methods for representation, manipulation, and description of visually-sensed data; spatial frequency domain; syntactic methods; currently available algorithms and hardware.

687. Computer Graphics. Cr. 3

Prereq: CSC 370. Material fee as indicated in *Schedule of Classes*. Computer graphics displays, 2-D and 3-D transformations, techniques for line and curve drawing, display files, graphic packages for storage tubes, raster-scan devices, realism in 3-D graphics.

699. Topics in Computer Science. Cr. 1-4(Max. 8)

Prereq: senior or graduate standing and consent of instructor. Material fee as indicated in *Schedule of Classes*. Current topics to be announced in *Schedule of Classes*.

719. Theory of Modelling and Simulation. Cr. 3

Prereq. or coreq: CSC 516; or prereq: 652 or consent of instructor. Elements of model theory; hierarchy of model relationships and validity, including homomorphism and structure-preserving morphism; simplification and aggregation; axiomatization of modelling from automata theory.

720. Formal Grammars and Syntactic Analysis. Cr. 3

Prereq: CSC 652. Algorithms for the parsing of context-free languages; backtracking methods; Earley's algorithm; LL, LR, SLR, and LALR techniques; various precedence techniques.

722. Formal Definition of Semantics. Cr. 3

Prereq: CSC 652. Human knowledge, axiomatic theories, and their interpretations; semantic definitions of programming languages (operation, denotational, and axiomatic), and their relation to translation; interpretation and execution; correctness of compilers and equivalences of programs.

723. Automatic Optimization of Programs by Compilers. Cr. 3

Prereq: CSC 622 and MAT 640. Data flow analysis, code motion decision, and resource allocation algorithms used to optimize compiler-generated code; safety and profitability measures; current topics.

724. Program Verification. Cr. 3

Prereq: CSC 520; 450 recommended. Material fee as indicated in *Schedule of Classes*. Specification and testing of programs; elements of predicate and propositional logic; axiomatic theory and its model; proving partial and total correctness; Floyd's and Hoare's proving schemes; correctness of concurrent programs.

725. Extensible Languages. Cr. 3

Prereq: CSC 622. Macrosystems; syntactic extension; data type extension; operator extension; control extension; review of extensible language efforts, ECL, MAD, MAD/I, Algol-D.

731. Computer Architecture. Cr. 3

Prereq: CSC 531. Single processor von Neumann architecture; stack architecture; parallel architecture; distributed architectures; microprogramming.

740. Advanced Design of Operating Systems. Cr. 3

Prereq: CSC 640 and MAT 221. Abstractions of operating systems; scheduling anomalies; special purpose scheduling algorithms; mechanisms for the control of concurrent processes; deadlock

prevention; proving correctness of operating systems.

742. Computer Networks. Cr. 3

Prereq: CSC 542 and 740. Material fee as indicated in *Schedule of Classes*. Loosely- and tightly-coupled networks; network topologies; message and packet switching; digital and analog networks; reliability and availability analysis; network control structures; passive and active broadcast media; software for network components; message security.

745. Parallelism in Computation. Cr. 3

Prereq: CSC 531 and 640. Concurrent programs and operating systems; synchronization concepts, sharing resources, and determinacy; distributed processing; synchronous and asynchronous parallel processes and their functionality; optimal utilization of resources; software and hardware parallelism; data flow machines and programs; parallelizing compilers.

751. Theory of Computation. Cr. 3

Prereq: CSC 652. Programs and algorithms; recursive function theory; universal Turing machines; control and data flow; theory of programs and algorithms; function and execution equivalencies; programs and processes, serial and parallel; translation.

761. Advanced Numerical Analysis I. Cr. 3

Prereq: CSC 662. Comprehensive analysis of the various techniques for solving linear algebra problems.

762. Advanced Numerical Analysis II. Cr. 3

Prereq: CSC 761. Comprehensive analysis of the various techniques for solving algebraic eigenvalue problems.

771. Advanced Database Management Systems. Cr. 3

Prereq: CSC 571. Material fee as indicated in *Schedule of Classes*. Topics including data models, query optimization, user views, integrity control, concurrency control, database security, crash recovery, distribution databases and inference techniques, discussed in the context of existing commercial and research-oriented database management systems.

773. Advanced Data Structures. Cr. 3

Prereq: graduate standing. Material fee as indicated in *Schedule of Classes*. Advanced topics in searching and sorting; dynamic data structures; parallel algorithms; algorithms for algebraic and geometric problems; pattern matching.

775. Techniques of Data Management. Cr. 3

Prereq: CSC 771 or 773. Material fee as indicated in *Schedule of Classes*. Advanced topics in index design; best-match and partial-match file designs; the consecutive retrieval property; data compression techniques.

780. Deduction Systems. Cr. 3

Prereq: CSC 680. Material fee as indicated in *Schedule of Classes*. Predicate logic; axiomatization of action and situations; resolution refutation; rule-based deduction systems; deduction on structured objects; non-monotonic logic; plan generating systems; inferential database systems.

782. Adaptive Systems II. Cr. 3

Prereq: CSC 682, MAT 570 or equiv. Mathematical theory of genetic adaptive plans; genetic operators; problems of representation; survey of current literature.

783. Advanced Pattern Recognition. Cr. 3

Prereq: CSC 683. In-depth study of special topics in pattern recognition and learning machines. Speech recognition, speaker verification and biomedical applications. Pattern recognition data bases. Theoretical advances.

786. Computer Vision. Cr. 3

Prereq: consent of instructor. Techniques for detection and

recognition of objects in images; scene analysis; use of knowledge in understanding single or multiple frames.

790. Directed Study. Cr. 1-5(Max. 16)

Prereq: written consent of adviser and graduate officer.

799. Master's Essay Direction. Cr. 3

Prereq: consent of adviser.

813. Advanced Topics in Computer Science. Cr. 2-4(Max. 16)

Prereq: consent of instructor. Advanced topics of current interest.

840. Modeling and Measurement of Computer Systems. Cr. 3

Prereq: CSC 516, 640 and MAT 221. 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.

850. Computer Science Seminar. Cr. 1-4(Max. 12)

Prereq: consent of instructor and adviser. Subjects of current interest and research; student reports.

880. Artificial Intelligence II. Cr. 3

Prereq: CSC 680 or consent of instructor. Material fee as indicated in *Schedule of Classes*. Acquisition, representation and application of knowledge in expert systems; distributed artificial intelligence; automatic programming.

899. Master's Thesis Research and Direction. Cr. 2-8(8 req.)

Prereq: consent of adviser.

999. Doctoral Dissertation Research and Direction. Cr. 1-16

Prereq: consent of doctoral adviser. Offered for S and U grades only.



CRIMINAL JUSTICE

Office: 214 Criminal Justice Institute, 6001 Cass Avenue

Chairperson: Marvin Zalman

Academic Services Officer: Mary A. Serowik

Professor

Louis L. Friedland (Emeritus)

Associate Professors

Donald A. Calkins, Wayne B. Hanewicz, Marvin Zalman

Assistant Professors

Thomas L. Austin, Thomas M. Kelley, Richard J. Terrill, Kenneth A. Weiner

Instructor

Robert Webb

Lecturer

David F. Smydra

Adjunct Assistant Professor

Eva S. Buzawa

DEGREE PROGRAMS

Bachelor of Science in Criminal Justice

Master of Science in Criminal Justice

Criminal Justice is organized society's primary formal means of social control. Generally, it is the practice of public and private agencies and groups which seek to prevent, control, adjudicate, punish, correct, and defend juvenile delinquents, criminal suspects, and convicted offenders. The core of the criminal justice system is comprised of police agencies, prosecutors, defense attorneys, courts, and correctional agencies. This system enforces federal and state laws and provides numerous other services. Criminal justice is part of a larger administration of justice complex which involves court administration, juvenile justice, and public and private security.

The study of criminal justice begins with analysis of the entire justice system as a force for social order. Advanced study inquires into the political, organizational, social and behavioral aspects of various components of the criminal justice system. Research courses give students the tools with which to independently analyze criminal justice and skills important for career development. Legal courses foster an awareness of the values of due process and the limits of governmental power in a democratic society.

The introductory course on the criminal justice system (CRJ 201) is designed to acquaint all students with contemporary problems and operations of police, prosecutors, courts, correctional agencies and juvenile justice institutions. Other survey courses in these areas and in security administration (CRJ 240, 241, 260, 270, and 351) may be of interest to students in business administration, health care, social work, journalism, and other public service fields.

Students considering an undergraduate or graduate major in criminal justice should consult the Undergraduate or Graduate Handbook before applying. These handbooks are available at the Department Office or will be mailed on request. The handbooks also keep the student informed of curriculum changes being planned.

Career Opportunities in criminal justice include roles as police officers, supervisors, and executives; criminal justice investigators working for public defenders, prosecutors, fire departments, and insurance companies; correctional officers for whom a college degree is mandatory, such as probation officers, parole officers, and community corrections specialists. Other specialized roles in criminal justice include juvenile intake officers, juvenile probation officers, volunteer administrators, criminologists, forensic scientists, forensic psychologists, medical examiners, and policy analysts.

Bachelor of Science in Criminal Justice

The Bachelor of Science program stresses a broad undergraduate education designed to enhance the student's liberal arts background in the social sciences and humanities. Required courses expose a criminal justice major to all aspects of the justice system and foster a systemic view rather than an attachment to a single component of criminal justice. Within this broad framework, courses which deal with specific topics and pre-professional concerns are available. Concentrations within criminal justice may be fulfilled by electing 12-18 credits of criminal justice electives in particular areas, such as security, corrections, juvenile justice, law enforcement, and pre-law studies. Practical field experience is desirable and may be arranged for up to eight credits under the guidance of the field placement coordinator.

The Bachelor of Science degree is awarded upon completion of 120 credits in recommended program course work, distributed as follows:

	<i>credits</i>		<i>credits</i>
English.....	6-9	Psychology.....	12
Humanities.....	11-12	Social Sciences.....	24
CRIMINAL JUSTICE.....	40-46	Speech.....	3
Physical Science.....	4	General Electives.....	10-20

Pre-Law Advising and Curriculum: Students wishing to major or minor in criminal justice and who are considering legal careers should notify the Department's adviser at the beginning of their junior year and arrange a conference with a pre-law adviser. For non-majors wishing to take a pre-law sequence of courses in criminal justice the following are recommended:

CRJ 201.....	Introduction to the Criminal Justice System	3
CRJ 240.....	Introduction to the Judicial Process	4
CRJ 326.....	Investigation	4
CRJ 495.....	Special Topics in Criminal Justice	3
CRJ 571.....	Constitutional Aspects of Criminal Law	4
CRJ 572.....	Criminal Law	4

Also see pre-law courses in Undergraduate Curricula, page 227.

Minor in Criminal Justice The Department offers a minor in Criminal Justice for which the notation of a *minor* appears on the student's transcript. The required Criminal Justice courses are:

	<i>Credits</i>
CRJ 201 — Introduction to the Criminal Justice System.....	3
CRJ 240 — Introduction to the Judicial Process.....	4
CRJ 260 — Police Role in the Criminal Justice System.....	4
CRJ 270 — Introduction to Corrections and Penology.....	3
CRJ 571 — Constitutional Aspects of Criminal Law.....	4
Criminal Justice Elective.....	3-4
	TOTAL: 21-22

Students wishing to minor in criminal justice are encouraged to visit the Departmental Offices for information and counseling. A minor may be declared when filing for graduation.

Master of Science in Criminal Justice Plan B or Plan C

The graduate program is a professional course of study designed to prepare persons for positions of leadership in the administration of justice. Concentrations are available in police administration, security administration, juvenile justice and counseling, correctional administration, and justice system volunteer administration. A total of thirty-two credits is required for the degree of Master of Science in Criminal Justice. Candidates must complete twelve credits in required courses in the core curriculum, in addition to which they may select twenty elective credits for the *Plan C* option. Students selecting the *Plan B* option complete seventeen elective credits plus a three credit essay. The core requirements remain the same for either *Plan B* or *Plan C*.

Credit may be given for graduate courses taken at other accredited institutions. However, a student must complete a minimum of twenty-four credits in residence at Wayne State University in order to qualify for the degree.

Admission: Applicants for the degree should consult the departmental graduate adviser. Strong undergraduate social science preparation is recommended. Additional undergraduate course work may be specified in criminal justice or related areas where such preparation is inadequate. Applicants must take the aptitude section of the Graduate Records Examination and achieve a satisfactory grade in accordance with departmental graduate policy. Requirements for admission include the applicant's overall or upper division grade point average prior to graduate admission and the submission of three letters of recommendation from college or university faculty familiar with the academic performance of the candidate.

At the discretion of the Criminal Justice faculty and consistent with requirements established by the Graduate Committee of the department, consideration will be given to special circumstances presented by students seeking admission. The degree is administered by a Master's Degree Committee which provides counsel in matters of admission, curriculum, and comprehensive written examinations.

Candidacy must be established by the time eighteen 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. For *Plan B*, the preparation of an essay of substantial excellence is required. A written comprehensive examination in the field of criminal justice must be taken.

Additional information on graduate requirements is contained in a Departmental Graduate Handbook available upon request.

COURSES OF INSTRUCTION¹ (CRJ)

201. Introduction to the Criminal Justice System. Cr. 3

Survey of criminal justice system. Agencies and processes include: police, courts, bail, prosecution, defense, plea bargaining, trial, sentencing, community corrections, jails and prisons.

240. Introduction to the Judicial Process. Cr. 4

An examination of the structure, powers, doctrines and judicial

processes including the origin, nature and functions of judicial review in the criminal justice system.

241. Introduction to Juvenile Justice and Delinquency. Cr. 3

No credit after former CRJ 291. Overview of the juvenile justice system, interrelationships with other components of the criminal justice system. Evaluation of law enforcement approaches to police-juvenile contacts.

260. The Police Role in the Criminal Justice System. Cr. 4

Role of the police officer in relation to the customs and problems of the community and to other elements in the criminal justice system. Comparative analysis of techniques being used by law enforcement agencies to deal with crime.

270. Introduction to Corrections and Penology. Cr. 3

Description and analysis of legal, social and political issues affecting contemporary correctional theory and practice. Topics include: history of corrections; function and social structure of correctional institutions; institutional alternatives including diversion, probation and parole. Field trips to institutions and community correctional settings normally required.

324. Traffic Control. Cr. 3

Essentials of traffic law; organization of traffic functions. Enforcement policies and procedures. Identification and analysis of traffic problems. Experiments in traffic control.

326. Investigation. Cr. 3

Prereq: CRJ 201 or consent of instructor. Overview of the history of criminal investigation, the functions of police investigators, crime scene search and evidence processing, an introduction to criminalistics, locating and interviewing witnesses, examining the elements of proof required in specific criminal offenses and interrogation techniques (pre- and post-Miranda).

333. Industrial Fire Protection. Cr. 3

Fire prevention and loss control. Essentials for security officers of fire causation, fire suppression and fire prevention.

334. Fire and Arson Investigation. Cr. 3

An integral part of the fire science curriculum in the field of criminal justice related to provisions for public safety.

350. Law Enforcement Operational Information Systems. Cr. 3

The essentials of reporting and record keeping and their uses in management. Administration of record systems. Introduction to electronic data processing.

351. Introduction to Security: Persons and Property. Cr. 4

No credit after former CRJ 231. Historical, philosophical and legal framework for security operations; detailed presentations of specific security processes and programs currently and historically utilized in providing security; operational view of specialized areas of security in loss prevention management.

385. (SOC 382) Criminology: Crime and the Criminal. Cr. 3

Criminality as a socio-legal phenomenon. Descriptive analysis of the criminal justice system: police, prosecution, courts, corrections. Interdisciplinary review of criminological thought and theory; methods of reporting and studying crime victimology, crimes of violence, organized crime and white collar crime.

450. Prevention and Diversion in Juvenile Justice. Cr. 3

Prereq: CRJ 241. Community-based delinquency prevention and diversion models. Cause-focused strategies: biological, physiological, social network, psychological, power enhancement, deterrence. Role of police and juvenile court in prevention and diversion; restitution. Evaluation of specific diversion programs.

¹ See page 633 for interpretation of numbering system, signs and abbreviations

480. (SOC 480) Outsiders, Outcasts and Social Deviants. Cr. 3

Definition and characteristics of such deviant behaviors as: criminality, mental illness, alcoholism, drug addiction, abortion, prostitution and pornography. Interdisciplinary theories for understanding such behaviors, their diagnosis, management, control and prevention.

481. Research in Criminal Justice. Cr. 3

Prereq: CRJ 201; twelve credits in criminal justice and junior standing. Introduction to elementary concepts of social science research in criminal justice. Basic social science theory, methods of research: observation, survey, experimentation. Introduction to descriptive analysis. Ethics and special problems of research in criminal justice settings. Review of current literature.

490. Directed Study. Cr. 1-3

Prereq: criminal justice major; written consent of instructor. Open only to Criminal Justice majors. Independent reading or research in a particular facet of criminal justice, culminating in an extended paper or research report prepared under direct supervision of faculty.

495. Special Topics in Criminal Justice. Cr. 3(Max. 9)

Prereq: CRJ 201 or consent of adviser. No credit for repeated section.

506. Comparative Criminal Justice Systems. Cr. 3

Prereq: consent of instructor. No credit after former CRJ 650. Selected criminal justice systems in other nations.

513. Advanced Investigation. Cr. 3

Prereq: CRJ 326. In-depth examination of a criminal investigation from inception through trial; may include actual homicide, sex, armed robbery or breaking-and-entering cases. Questioning and interrogation; case preparation; constitutional limitations; interface of police with prosecution and trial courts; administration of investigation.

515. Introduction to Forensic Science. Cr. 3

Prereq: CRJ 326 or consent of instructor. Broad introductory survey of the natural, medical, and behavioral sciences with regard to their forensic application.

528. Pro-Seminar: Evidence. Cr. 3

Prereq: minimum of 9 credits in criminal justice. Admissibility of evidence in courtroom proceedings, problems of hearsay, real, and administrative evidence, circumstantial and testimonial evidence; and application to law enforcement officers.

534. Community Based Corrections. Cr. 3

Prereq: CRJ 270 or consent of instructor. History, theory and practice of community based corrections. Probation and parole; halfway houses and other residential correctional facilities. Jails as community correctional centers. Legal issues. International perspectives. The future of community corrections.

552. Advanced Security Topics. Cr. 3

Prereq: CRJ 351 or consent of instructor. No credit after former CRJ 530. The study of specialized security systems that present unique problems or require advanced technology. Topics may include: the security of computer systems and data banks; transportation security; security of governmental facilities; bank security.

554. Terrorism and the Urban Society. Cr. 3

Prereq: CRJ 351 or consent of instructor. No credit after former CRJ 510. Motivation, goals and typology of terrorist groups and individuals. Terrorism in domestic and international law. Governmental response; martial law; declarations of emergency, contingency planning, evacuations. Industrial concerns to terrorism. Roles of local police and federal agents. Hostage negotiations. Improving response to dealing with potential terrorist situations.

560. Strategies in Crime Control. Cr. 3

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.

570. Understanding and Coping With Stress in Law Enforcement. Cr. 3

Provides criminal justice personnel with a bio-social framework or model to identify specific stresses peculiar to law enforcement work and develop adaptive mechanisms to mediate stress and alleviate the psychological effects of stress.

571. Constitutional Aspects of Criminal Law. Cr. 4

Prereq: minimum of 12 credits in criminal justice. Constitutional safeguards and legal controls on governmental action. Constitutional doctrines examined: due process, equal protection of the laws, search and seizure, self-incrimination, double jeopardy, right to counsel, speedy trial, bail, cruel and unusual punishments. Topics may include: role of Supreme Court, investigation, arrest, stop and frisk, searches, electronic eavesdropping, confessions, preliminary examination, grand jury, plea bargaining, jury trial, sentencing, prisoners' rights, death penalty.

572. Criminal Law. Cr. 3

Prereq: consent of adviser. An examination of the common law. Development of the criminal law, the general elements of crime, general defenses, principles of accountability, and the particular elements of specific crimes.

581. (SOC 581) Law in Human Society. Cr. 3

Law and the legal structure in its social context. Development, enforcement, and interpretation of law; emphasis on the American governmental system. Reciprocal effects of law and the society in which it develops; comparative analysis. For pre-law, criminal justice, and political science students, as well as for sociology majors.

600. Field Studies. (US 600). Cr. 1-8(Max. 8)

Prereq: written consent of adviser. A comprehensive internship program involving various criminal justice agencies. Placement may be made in court, corrections, police, juvenile justice, and other agencies at the state, county and local levels; work opportunities include agency procedure and policy, patrol, case analysis, report writing and research.

602. Practicum: Justice System Counseling. Cr. 3

Prereq: CRJ 241 or consent of instructor. No credit after former CRJ 693. Supervised practice in interviewing techniques and counseling methods frequently utilized in the treatment of adolescents or adults on probation, parole or in correctional institutions.

612. Establishing In-Service Training Programs. Cr. 3

Prereq: 12 credits in criminal justice. Theoretical and practical criteria necessary to facilitate the establishment of in-service training concepts in criminal justice programs.

613. Research Methods. Cr. 3

Planning and design for research in criminal justice and related fields. Application of selected methods.

614. Quantitative Methods. Cr. 3

Prereq: graduate standing or consent of instructor; CRJ 613. Application and analysis of descriptive and inferential statistics in criminal justice planning, research and evaluation.

623. Advanced Law Enforcement Administration. Cr. 3

Prereq: CRJ 201 or consent of adviser. Police-management problems; organization and objectives, planning and coordination, public relations and support.

625. Labor Relations Law in a Criminal Justice System. Cr. 3
Prereq: P S 629 or equiv. or consent of instructor. Development of police labor organizations, statutory requirements, administrative law precedents established particularly in Michigan.

634. Correctional Administration. Cr. 3
Prereq: CRJ 270 or consent of adviser. No credit after former CRJ 527. In-depth study of the administration and organization of federal, state and local correctional systems, the correctional process, client treatment and alternatives to incarceration.

643. Counseling Strategies with Youthful Offenders. Cr. 3
Prereq: CRJ 241 or consent of instructor. No credit after former CRJ 691. Application of causal theories to counseling strategies. Models for offender classification and treatment. Counselor attitudes and styles. Special issues in the treatment of delinquents. Individual and group models for counseling. Evaluation models to assess counseling effectiveness.

646. Volunteerism in Criminal Justice. Cr. 3
History, philosophy and structure of volunteer programs in policing, juvenile and adult probation and corrections. Roles of volunteers. Dynamics of personal change. Administration of volunteer programs.

652. Security Administration. Cr. 3
Prereq: CRJ 351. No credit after CRJ 680. Organization and administration of a security system.

660. Social and Legal Dynamics of Child Abuse. Cr. 3
Prereq: CRJ 241 or consent of instructor. Dynamics and psychopathology of child abuse: 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.

675. Administrative Law in Criminal Justice. Cr. 3
Prereq: junior, senior or graduate level standing. Functions, powers, procedures, and constitutional limitations germane to administrative agencies and officers, with particular emphasis on those operating in the criminal justice field.

686. (SOC 686) Organized Crime: Its History and Social Structure. Cr. 3
Prereq: CRJ 385 or SOC 382. Open only to juniors, seniors and graduate students. Analysis of the history and social structure of organized crime. Contemporary national and international forms of criminal enterprises.

701. Contemporary Criminal Justice. Cr. 3
Survey of classic literature and important contemporary studies of all major facets of criminal justice system, including law, police, prosecution, defense, judiciary, probation, corrections, and parole.

720. Public Policy and the Criminal Justice System. Cr. 3
Analysis of interrelationship of criminal justice system components and the political setting surrounding the formulation and administration of public policies for crime control.

736. Seminar: Criminal Justice Administration. Cr. 3
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 techniques employed.

770. Social Organization of Policing. Cr. 3
Open only to graduate students. A detailed analysis of the police organization as a set of symbolic repertoires and situated actions. The development of the police mandate as it is practiced today and its resulting problems are examined.

778. (SOC 880) Seminar in Deviance and Criminology. Cr. 3
Prereq: introductory course in the particular field and consent of

instructor.

783. Program Planning and Evaluation in Criminal Justice. Cr. 3

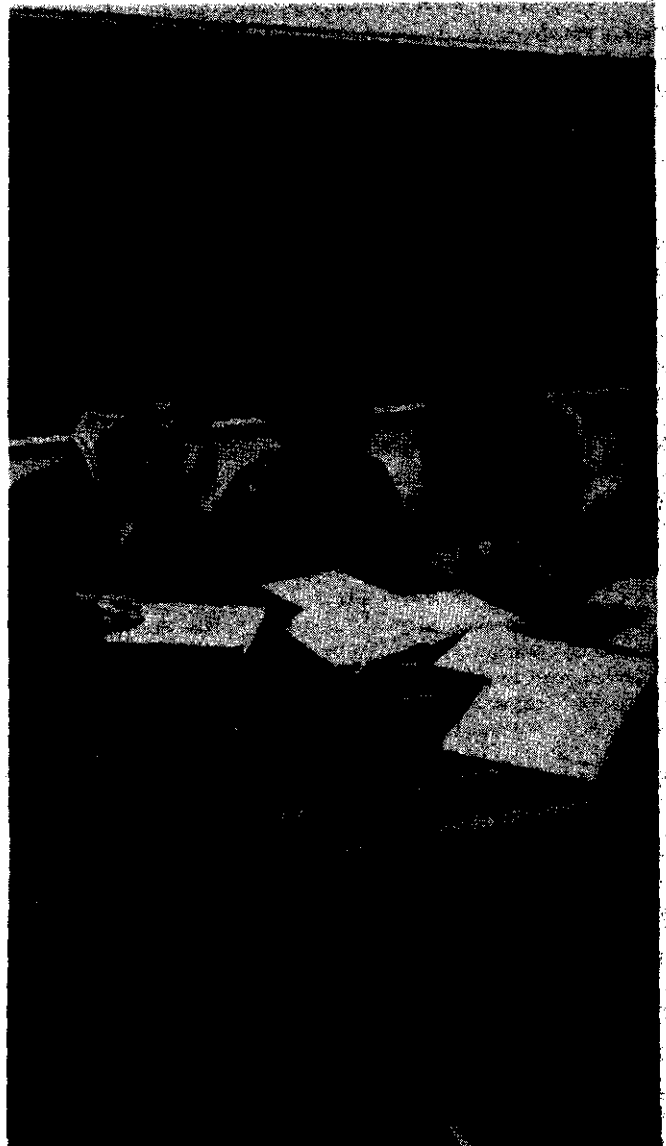
Prereq: CRJ 613. No credit after CRJ 611 Process of formulating, implementing, and evaluating criminal justice programs. Administering projects, including development of priorities, securing, funding and design of evaluation strategies. Evaluation research.

789. Readings in Criminal Justice. Cr. 2-4 (Max. 8)
Prereq: consent of adviser. Selected readings in criminal justice.

790. Directed Study. Cr. 3
Prereq: 24 graduate credits in major; written consent of adviser, chairperson and graduate officer.

799. Master's Essay Direction. Cr. 3
Prereq: consent of graduate adviser.

876. (PSY 876) Seminar in Clinical Psychology. Cr. 1-3
Prereq: written consent of instructor. Current research. Topics to be announced in *Schedule of Classes*.



EAST EUROPEAN STUDIES

Program Coordinator: Prof. Frank J. Corliss, Jr.

Office: 443 Manoogian

Master of Arts

Plan A: Thirty-two credits in course work including a total of eight 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 upon the student's interest and previous preparation.

Candidacy must be established by the time twelve credits have been earned.

Degree Requirements: Course elections may include four credits in advanced language training for research purposes (Slavic 711). The elections must include a graduate seminar, and courses selected from the Department of Slavic and Eastern Languages, Economics, Geography, History, Political Science and Anthropology. See Program Coordinator for list of specific courses. Substitutions may be made only with the approval of the graduate adviser.

An interdepartmental committee will advise the chairperson of the department of Slavic and Eastern Languages in assisting the student to work out his or her 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/her 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 chairperson of the Department of Slavic and Eastern Languages. A final oral examination is required.

ECONOMICS

Office: 960 Mackenzie Hall

Chairperson: David J. Smyth

Academic Services Officer: Margot A. Demarais

Professors

David I. Fand, Thomas J. Finn, Jr., I. Bernard Goodman, Mark L. Kahn, Jay H. Levin, 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 (Emeritus), Michael R. Haines, James L. Hamilton, Li Way Lee

Assistant Professors

Robin A. Dubin, John E. Garen, Stephen H. Karlson, Andrea L. Long, Rosemary D. Rossiter, Carlos E. Santiago, Allen J. Scafuri, Michael H. Thomson, Nicholas C. Yannelis

Lecturer

Socrates Tountas

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; and Master of Arts in industrial relations under the Graduate School)

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 for qualified graduate students in residence.

Students who are considering an economics major should elect Economics 101 and 102 as soon as possible, preferably in the

603. Managerial Economics. Cr. 4

Prereq: ECO 500 and MAT 201 or consent of instructor. Microeconomics of business theory; decision theory applied to such problems as production and inventory control; the use of game theory to study market strategies. Emphasis is placed on the firm's use of limited information in an uncertain environment. Linear and non-linear programming techniques developed and used throughout the course.

605. Macroeconomics. Cr. 4

Prereq: ECO 505 or equiv. No credit after ECO 705. Determination of national income, unemployment and interest rates; theories of inflation; effectiveness of macroeconomic public policies. Primarily for M.A. students and for Ph.D. students who want to review.

700. Microeconomic Theory I. Cr. 4

Prereq: ECO 500 and MAT 201 or MAT 501 or equiv. Theory of choice; theory of cost and production; theory of the competitive firm. Price and output in non-competitive markets. General competitive equilibrium and welfare economics.

701. Microeconomic Theory II. Cr. 4

Prereq: ECO 700. Continuation of ECO 700.

704. History of Economic Thought. Cr. 4

Prereq: consent of instructor. Advanced inquiry into the development of economic doctrine.

705. Macroeconomic Theory I. Cr. 4

Prereq: ECO 505 or equiv. Determination of national income, employment, interest rates and the price level; static and dynamic models; cycle and growth models; classic, Keynesian and neo-Keynesian models.

706. Macroeconomic Theory II. Cr. 4

Prereq: ECO 705 or equiv. Continuation of ECO 705.

805. Dissertation Workshop in Economic Theory. Cr. 4(Max. 8)

Prereq: completion of qualifying examinations in economic theory. Evaluations of proposed and current research in micro- or macroeconomic theory, or both. Topics to be announced in *Schedule of Classes*.

Field B — Quantitative Methods

410. Economic and Business Statistics I. (Lab: 1.5; or Lec: 2). Cr. 3

Prereq: ECO 102; MAT 150 or MAT 180 or equiv. based on satisfactory score on 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.

510. Economic and Business Statistics II. Cr. 3

Prereq: ECO 410 or MAT 570 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.

610. Introduction to Econometrics. Cr. 4

Prereq: ECO 505 and 510 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.

710. Econometrics I. Cr. 4

Prereq: MAT 502 or consent of instructor. Probability; random variables, frequency distributions; hypothesis testing, estimation and properties of estimators. Estimating the classical linear model using

ordinary least squares, maximum likelihood, and best linear unbiased estimators. Best linear unbiased estimators when relaxing classical assumptions.

711. Econometrics II. Cr. 4

Prereq: ECO 710 or consent of instructor. Autocorrelation, heteroscedasticity, Koyck and Almon distributed lag models, multicollinearity, 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, missing observations, grouping of data. Simultaneous equation systems.

810. Advanced Econometrics. Cr. 4

Prereq: ECO 711. Selected topics such as nonlinear estimation, Bayesian methods, time series forecasting, estimation of simultaneous equations, and simulation models.

811. Applied Econometrics. Cr. 4

Prereq: ECO 711 or 810 or consent of instructor. Applications of econometric methods to the analysis of economic hypothesis, with examples drawn from current research in various fields of economics. Students required to participate in model specification, estimation, prediction, and evaluation.

815. Dissertation Workshop in Statistics and Econometrics. Cr. 4(Max. 8)

Prereq: completion of qualifying examination in econometrics. Evaluations of proposed and current research in statistics and econometrics.

Field C — Industrial Organization

320. Public Control of Business. Cr. 3

Prereq: ECO 102. 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.

520. Regulation and Regulated Industries. Cr. 4

Prereq: ECO 102. 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.

521. Market Power and Economic Welfare. Cr. 4

Prereq: ECO 102. 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.

522. Economics of Transportation. Cr. 4

Prereq: ECO 102. Principles of transportation economics. Inter-city transportation; competition among rail, highway, and air transport; the impact of government regulations. Problems of metropolitan transportation systems.

720. Industrial Organization I. Cr. 4

Prereq: consent of instructor. Theories of competition and market power. Topics include concentration, scale economies, product differentiation, entry barriers, collusion, mergers, price discrimination, information, and advertising.

721. Industrial Organization II. Cr. 4

Prereq: consent of instructor. Economic analysis of antitrust policy and public regulation of industry. Rationale for regulation and

mandates of various regulatory agencies. Problems in public utility rate-making. Misallocations induced by regulation. Role of competition in regulated industries.

825. Dissertation Workshop in Industrial Organization.
Cr. 4(Max. 8)

Prereq: completion of qualifying examination in industrial organization. Evaluations of proposed and current research in industrial organization.

Field D — International Economics

530. International Economic Relations. Cr. 4

Prereq: ECO 102. 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.

531. International Finance. Cr. 4

Prereq: ECO 101. 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.

730. Advanced International Trade Theory. Cr. 4

Prereq: consent of instructor. The theory of international trade and commercial policy: classical and modern models of the determinants of international trade and their empirical verification; welfare aspects of trade and trade intervention; customs union theory; effective protection.

731. Advanced International Monetary Theory. Cr. 4

Prereq: consent of instructor. Foreign exchange rate and balance of payments adjustment theory under alternative exchange rate regimes; stabilization policies in open economies; financial capital movements; monetary unions; economic growth and the balance of payments.

835. Dissertation Workshop in International Economics.
Cr. 4(Max. 8)

Prereq: completion of qualifying examination in international economics. Evaluations of proposed and current research in international economics.

Field E — Labor and Human Resources Economics

240. Women's Studies II: Women in American Political and Economic Life. (P S 407). Cr. 3

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.

441. Labor Institutions. Cr. 4

Prereq: ECO 102. The 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.

544. Economics of Social Welfare. (S W 575). Cr. 4

Prereq: ECO 102 or consent of instructor. Economics of education, unemployment, poverty, and discrimination. Emphasis on analyzing the interests of both taxpayers and beneficiaries of government programs in order to deal with their economic problems.

547. Economics of Aging. Cr. 4

Prereq: ECO 102 or consent of instructor. Economic implications of aging and retirement; public policy issues related to aging, including such matters as health care, social security, income maintenance and other welfare problems.

549. American Labor History. (HIS 529)(HIS 729). Cr. 3

Prereq: ECO 101 or consent of instructor. Development of the American labor movement; its behavior in the contemporary scene. Labor's experiments with social, political, legal, and economic institutions. Comparisons with foreign labor movements.

641. Labor Markets. Cr. 4

Prereq: ECO 102. Labor supply; causes of 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.

642. Labor Relations Institutions and Public Policy. Cr. 3

Prereq: ECO 101 or graduate standing. Overview of labor force trends; U.S. unionism; management of labor relations; collective bargaining; procedure and substance; bargaining power in the private and public sectors; public relations policies.

740. Labor Economics and Human Resources. Cr. 4

Prereq: ECO 500 and 505 or consent of instructor. Labor force participation and composition; factors affecting wage levels (money and real) and wage structure. Theoretical and empirical analyses of occupational choice, labor mobility, and income inequality.

741. Human Resources, Labor Markets, and Public Policy.
Cr. 4

Prereq: ECO 600 and 610 or consent of instructor. Theoretical and empirical analyses of aggregate labor supply and demand and of investment in human capital. Evaluation of education, manpower, health, and welfare programs.

747. Economic Factors in Industrial Relations. Cr. 3

Prereq: ECO 102 and 510 or consent of instructor. Wage determination under collective bargaining: key bargains, patterns, orbits of coercive comparison. Application of wage criteria in negotiations, fact-finding, and interest arbitration. Fringe benefits vs. cash earnings. Estimating costs of contract changes. Designed mainly for students in M.A.I.R. program; doctoral students in Economics who wish to take this course must have the consent of the Ph.D. adviser in economics.

749. (I R 750) Seminar in Industrial Relations. Cr. 3

Prereq. or coreq: I R 740, I R 745, I R 790, I R 799. Open only to M.A.I.R. students. Study of selected industrial relations topics. Research paper required of each student. Industrial relations specialists utilized as guest speakers.

845. Dissertation Workshop in Labor and Human Resources Economics. Cr. 4(Max. 8)

Prereq: completion of qualifying examination in labor and human resources economics. Evaluations of proposed and current research in labor and human resources economics.

Field F — Public Finance

550. Public Finance: Taxation. Cr. 4

Prereq: ECO 102 or consent of instructor. Role of taxation in a 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.

551. Public Finance: Expenditures. Cr. 4

Prereq: ECO 102 or consent of instructor. Role of government in a market economy; public goods; decision processes in the public sector; voting rules; nature of public expenditures and their historical development; influence of government expenditures. Problems of public debt.

552. State and Local Finance. (U P 675). Cr. 3

Prereq: ECO 102 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.

750. Public Finance I. Cr. 4

Prereq: ECO 551 or consent of instructor. Problems of budgeting, public choice, government expenditure, incidence shifting, tax effects, national debt, stabilization and economic growth.

751. Public Finance II. Cr. 4

Prereq: ECO 551 or consent of instructor. Continuation of ECO 714; research problems in public finance.

855. Dissertation Workshop in Public Finance. Cr. 4(Max. 8)

Prereq: completion of qualifying examination in public finance. Evaluations of proposed and current research in public finance.

Field G —

Economic History and Development

360. Comparative Economic Systems. Cr. 3

Prereq: ECO 101 and 102 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.

460. Economic Development of the United States. Cr. 3

Prereq: ECO 101 and 102 or consent of instructor. Determinants of economic growth in the United States since its colonial beginnings.

560. Introduction to Development Economics. Cr. 4

Prereq: ECO 101 and 102 or consent of instructor. National poverty and economic growth viewed from an historical and theoretical perspective; particular emphasis on national and international policies.

760. Economic Development I. Cr. 4

Prereq: consent of instructor. Survey of alternative approaches to development economics, emphasizing historical and theoretical approaches.

761. Economic Development II. Cr. 4

Prereq: consent of instructor. Continuation of ECO 760, with emphasis on development planning methodology, planning procedures, and policy and strategy decisions confronting developing countries.

865. Dissertation Workshop in Development. Cr. 4(Max. 8)

Prereq: completion of qualifying examination in economic history and development. Evaluations of proposed and current research in economic history and development.

Field H — Money and Banking

570. Money and Banking I. Cr. 3

Prereq: ECO 101. 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.

571. Money and Banking II. Cr. 3

Prereq: ECO 505 and 570. 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.

770. Monetary Economics I. 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.

771. Monetary Economics II. Cr. 4

Prereq: consent of instructor. Development of monetary theory; present theories of relations between money, prices, and national income; methods of monetary control employed by government authorities; current controversies.

875. Dissertation Workshop in Monetary Economics. Cr. 4 (Max. 8)

Prereq: completion of qualifying examination in monetary economics. Evaluations of proposed and current research in monetary economics.

Field I —

Urban and Regional Economics

280. (U S 200) Introduction to Urban Studies. 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.

380. Environmental Economics. Cr. 3

Prereq: ECO 102. Economic and ecological aspects of principal pollution problems; U.S. and global perspectives; environmental legislation. Cost benefit analysis applied to pollution abatement.

580. Urban and Regional Economics I. (U P 582). Cr. 3

Prereq: ECO 101 and 102 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.

581. Urban and Regional Economics II. (U P 592). Cr. 3

Prereq: ECO 580. Seminar in selected topics in regional economic development, urban problems and public policy.

780. Urban and Regional Development. Cr. 4

Prereq: consent of instructor. The city as an economic system in a functional and spatial system of cities. Emphasis on the city as a reflection of its industrial and occupational structure; as a stock of capital, aging and renewing in space and over time; and as an implicit price system. Interrelationships between local and national policy, management and finance.

781. Location Theory and Regional Economics. Cr. 4

Prereq: consent of instructor. Location theory with emphasis on the locational decisions of the firm, factor substitution in space and the size distribution of cities. Regional economics emphasizing growth and development models, interaction (gravity) models, and regional

income and employment (multiplier) econometric models. Input-output and linear programming models with spatial applications.

885. Dissertation Workshop in Urban and Regional Economics. Cr. 4 (Max. 8)

Prereq: completion of qualifying examination in urban and regional economics. Evaluations of current and proposed research in urban and regional economics.

Directed Readings, Thesis Direction and Special Courses

390. Directed Study. Cr. 1-3 (Max. 6)

Prereq: senior standing with 12 or more credits in economics with 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.

398. Professional Practice in Economics. Cr. 1 (Max. 4)

Prereq: junior or senior standing and consent of co-op coordinator. Open only to students in Economics Co-op Program. Offered for S and U grades only. Review of practical experiences in economics as a result of participation in the Economics Co-op Program of work-study.

496. Research in Economics. Cr. 3-12 (Max. 12)

Prereq: consent of department prior to registration; senior standing with 12 or more credits in economics with grade A or B. Economic research on an appropriate topic of the student's choice, conducted under faculty supervision.

498. Senior Honors Seminar. Cr. 4 (8 req.)

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.

796. Research in Economics. Cr. 2-8 (Max. 16)

Prereq: consent of adviser. Open to qualified students who desire opportunity for research and directed study. May be conducted as seminar.

799. Master's Essay Direction. Cr. 3

Prereq: consent of adviser.

899. Master's Thesis Research and Direction. Cr. 2-8 (8 req.)

Prereq: consent of adviser.

999. Doctoral Dissertation and Research. Cr. 1-16 (30 req.)

Prereq: consent of doctoral adviser. Offered for S and U grades only.

ENGLISH

Office: 431 State Hall

Chairperson: Marilyn L. Williamson

Associate Chairperson: Robert B. Winans

Academic Services Officer: Pearl A. Warn

Professors

Alvin B. Aubert, Chester H. Cable (Emeritus), Joanne V. Creighton, Lester E. Dickinson (Emeritus), Samuel A. Golden (Emeritus), Arnold L. Goldsmith, C. Yates Hafner, Leslie L. Hanawalt (Emeritus), Patricia E. Hernlund, Daniel J. Hughes, Thelma G. James (Emerita), Orville F. Linck (Emeritus), Ralph L. Nash, Emilie A. Newcomb (Emerita), Joseph Prescott (Emeritus), John R. Reed, Herbert M. Schueller (Emeritus), Alfred Schwarz, Vern Wagner, Vincent C. Wall (Emeritus), Marilyn L. Williamson, Beongcheon Yu

Associate Professors

Samuel Astrachan, John E. Bassett, Charles M. Baxter, Michael J. Bell, Alexander Brede (Emeritus), John C. Brereton, Esther M. Broner, Walter F. Edwards, Jeanne A. Flood, Alva A. Graham (Emerita), Henry L. Golemba, Joseph A. Gomez, Isabel Graham (Emerita), David S. Herreshoff, Bernard Levine, Donald MacDonald, Arthur F. Marotti, Jay W. McCormick, William E. Mockler, Amy K. Richards, Edward Sharples, Elizabeth S. Sklar, Paul Sporn, Robert M. Strozier II, Leonard W. Tennenhouse, Philip J. Traci, Travis E. Tritschuh (Emeritus), Stephen H. Tudor, Richard R. Werry (Emeritus), Robert B. Winans

Assistant Professors

Nancy B. Armstrong, Greg N. Carlson, Bernyce Cleveland (Emerita), Daniel A. Cottom, Barbara A. Couture, Alice T. Crathern (Emerita), Bradford S. Field, John C. Franzosa, Dean G. Hall, Norman Harris, Edward M. Hirsch, Alice A. Horning, Terrance J. King, Janet L. Langlois, Charles J. Meyers, Ross J. Pudaloff, Michael H. Scrivener, Clifford H. Siskin, Russell E. Smith (Emeritus), Dennis M. Turner, Anca Vlasopolos, Renata M. Wasserman, Susan Wells

Lecturers

Lillian L. Back, Joan S. Corwin, Claire Crabtree, Todd Duncan, Faith F. Gardner, Ruth E. Goldman, Ellen M. James, Darlene L. Job, Elizabeth L. Malone, Ruth E. Ray

DEGREE PROGRAMS

Bachelor of Arts—with a major in English

Master of Arts—with a major in English

Master of Arts in Comparative Literature

Doctor of Philosophy—with a major in English and specializations in American literature, English literature, literary criticism, and the theory of expository writing

Programs of study in English provide both a liberal education and fundamental preparation for numerous careers. English majors enter careers in business and governmental service; writing, journalism, and

publishing; professions such as teaching, law, medicine, and religion; as well as graduate study in English and related fields.

English Courses

The English Department offers courses in several areas of study: composition, creative writing, film, folklore, language, literature and popular culture. All students in the College of Liberal Arts must take English 102 and at least one course at the 200 level to fulfill the English Group Requirement. Those students whose scores on the English Placement Test indicate need for instruction and practice in composition will be placed in English 101, Composition Seminar, before they take English 102. (Students taking the English Placement Test must apply to Testing and Evaluation, University Counseling Services; the fee is \$6.00.)

In addition, any literature or folklore course may be used toward fulfillment of the College humanities requirement (see page 223).

Courses at the 200 and 300 level are open to all undergraduates who have completed 102. Courses at the 500 level are open to both undergraduates and M.A. students. Senior standing is prerequisite to undergraduate admission to all 600-level courses. Only graduate students may register for 700-level courses.

Students should note that some English courses have general titles which are constant while specific sub-titles change each semester. Students may elect such courses more than once. English Authors (225), for example, can be elected four times for credit. The *Bulletin* entry is Cr. 3 (Max. 12); a student could take it once in Charles Dickens, once in Chaucer, once in D. H. Lawrence, and a fourth time in Jane Austen. Consult the Courses of Instruction section (page 290) for additional listings.

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.

The *Agnes Bruenton Award* is presented in the Tompkins awards competition to a black student for excellence in writing. The winner of the Bruenton Award is also eligible for the Tompkins Award.

Bachelor of Arts

Major Programs: The undergraduate major in English must elect a minimum of eleven courses in English beyond the English Group Requirement. Nine of these eleven courses must be above the 200 level. Two courses (English 311 and 312) are specifically required. Three others must be selected from among specified groups of courses. The rest may be chosen from a wide range of offerings in literature, writing, folklore, linguistics and film. Specific requirements are as follows:

1. English 311 and 312.
2. One course in English literature chosen from the group numbered 510 through 519.
3. One course in English literature chosen from the group numbered 520 through 529.
4. One course in American literature chosen from among 314, 541, and 542.
5. One additional literature course chosen from the group numbered 508 through 559.

6. Three additional courses in any area at the 500 level.

Students are strongly advised to take a Shakespeare course, a course in minority literature, and more than the minimum number of required courses at the 500 level. No more than forty-five credits in the major field may count toward degree requirements.

Creative Writing: The creative writing program is designed for English majors who are seriously interested in writing fiction, poetry, drama, or personal essays. Students who wish to emphasize creative writing are expected to begin with English 280. Thereafter, students should elect courses in the appropriate sequence: within a genre a 200-level course should precede a 500-level course. For example, a student interested in writing poetry might take 280, 281, 587 (may be taken twice), and 680 (may be taken twice), or might wish to begin a second genre at the 200 level. Creative writing students must select additional courses in English and American literature and criticism.

Folklore: Students interested in folklore should begin with English 260 and develop a program with advanced courses in genres and areas of folklore at the 500 level. Such students should select other courses to provide a breadth of background in language, literature and criticism. They may wish to add electives in anthropology and related areas. Wayne State University's Folklore Archive, located in Purdy Library, is among the best in the United States.

Advising: The department provides advising to English majors, through the Undergraduate Studies Committee, and to non-majors through the English Electives Advising Committee. As soon as possible, and no later than the end of the fourth semester, the prospective major should consult the chairperson of the Undergraduate Studies Committee to discuss a course of study.

English majors and minors are not exempt from the English Proficiency Examination in Composition.

The Minor in English: The minor in English requires six courses beyond freshman composition for a total of at least eighteen credits:

- a. at least one course from the following: ENG 311, 312, 314
- b. at least one course from ENG 508 through 559.

The remaining four courses may be selected to develop individual interests, provided that at least two are selected from: ENG 220, 311, 312, 314, and the 500-level.

No 100-level course and no more than two 200-level courses will count toward the minor.

The minor in English permits concentrations in: literature, film and literature, folklore, creative writing, language studies and expository writing.

— Honors Program Requirements

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 the junior year.

The English major who is admitted to the Honors Program works largely through independent study toward a knowledge of English and American language and literature. Independent study is supervised through the course for honors majors, English 491, in which the student may earn as many as twenty-four credits. Progress in course work and independent reading is monitored through informal periodic reviews. Two additional courses, as recommended by the adviser, at

the 500 level are required. In the senior year, the honors major must submit a twenty-to-thirty page honors essay.

To qualify also for College Honors, the honors major should enroll in the Liberal Arts Honors Program. Information is available in the Honors Program office, 16.1 Library Court.

— Combined Curriculum Requirements

Combined Curriculum for Academic Studies: An English major who wishes to prepare for a career in secondary school teaching must complete either the regular program for majors or the Honors Program. The student's program must also include a course in language study, and a course in expository writing, either 301 or 501. Information regarding this curriculum is on page 231.

Combined Curriculum 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 in English beyond the English Group Requirement. At least four of these must be above 200.

Master of Arts

Plan A: Twenty-five credits in course work, plus a thesis.

Plan B: Thirty 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. An applicant who does not have an undergraduate major or a strong minor in English *and* some coverage of the major periods of English and American literature 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 Requirement: The student's graduate program should be planned to supplement undergraduate preparation so that the student will have a reasonably complete survey of English and American literature. Outside this general requirement, each individual program can accommodate particular interests and needs. It must include, however, English 701, at least three other 700-level seminars, and the essay or thesis. The remaining courses may be at the 500, 600, or 700 level. With the consent of the departmental M.A. adviser, the student may submit a work of imaginative writing as an essay or thesis.

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, usually French, German, or Spanish. Other languages may be substituted by consent of the Graduate Committee.

Master of Arts in Comparative Literature

See page 269.

Doctor of Philosophy

The Ph.D. program in English offers advanced studies in such fields as modern literature, Anglo-Irish studies, criticism, and folklore, in addition to the standard areas of British and American literature. An optional concentration in composition theory is also available.

Admission to the doctoral program in English is open to superior students. Students may apply to the Ph.D. program with either a bachelor's or a master's degree. Application credentials should be filed in the Graduate School 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 Chairperson of the Departmental Committee on Graduate Admissions indicating his/her educational history, interests, reading, aptitudes, and other matters which will enable the committee to evaluate the student's ability and qualifications. The Aptitude and Advanced Sections of the Graduate Record Examination are required as are samples of the student's scholarly and critical writing.

Four letters of recommendation are required; forms indicating the kind of information desired may be obtained from the Chairperson of the Departmental Committee on Graduate Admissions.

The foreign language requirement may be met in one of 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 Department does not require specific courses, with the exception of English 701; however, the student's graduate-level course work must reflect broad coverage of major periods, genres, and authors, regardless of examination subjects and area of specialization. The majority of the courses must be numbered 600 and above; exceptions may be approved by the departmental doctoral adviser with the permission of the Graduate School.

The department requires a minor of eight credits in course work on the graduate level in a related area, usually outside the department.

The Final Qualifying Examination, which must be taken within one calendar year after the completion of course work, consists of:

1. A written examination in four areas, three chosen from among eight designated periods, the fourth in an area of the student's choice. Students selecting the composition option will take two examinations from the designated literary periods, and two from a list of specialized examination areas.
2. An oral examination to be taken after the student 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 234.

The time limit for the completion of the degree is seven 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.

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 chairperson of the department.

491. Honors Seminar. Cr. 3-6(Max. 24)

Prereq: consent of instructor or English Honors Committee. Honors seminar.

501. Advanced Expository Writing. Cr. 3(Max. 6)

Prereq: ENG 301 or consent of instructor. Writing of articles and other forms of extended exposition.

503. Topics in Women's Studies. Cr. 3(Max. 9)

Thematic, critical or generic study of women and literature. Topics to be announced in *Schedule of Classes*.

505. Literature into Film. Cr. 3

Ways of adapting literary works to film form. Focus on the artistic and practical problems of transforming literature to film.

506. Styles and Genres in Film. Cr. 3(Max. 9)

Study of significant works within selected genres: the western, the horror film, comedies. Emphasis on styles of particular directors.

507. Topics in Film. Cr. 3(Max. 9)

Topics (such as film and fusion of the arts) to be announced in *Schedule of Classes*.

508. History of Literary Criticism. Cr. 3

Development of literary criticism from its origins to the present.

509. Topics in Literary Criticism. Cr. 3(Max. 9)

Close reading of one or more major critics, the criticism of a literary period or selected critical texts. Topics to be announced in *Schedule of Classes*.

510. Literature of the Middle Ages. Cr. 3

Major works and genres of Old and Middle English; mostly in translation.

511. Chaucer. Cr. 3

Readings from *The Canterbury Tales* and from Chaucer's other works. Aspects of medieval life and thought which illuminate Chaucer's work.

512. Topics in Medieval Literature. Cr. 3(Max. 9)

Selected themes, genres, techniques in medieval English literature, such as heroic literature, narrative technique, cycle drama, lyric poetry. Topics to be announced in *Schedule of Classes*.

513. English Drama to 1642. Cr. 3

Introduction to drama from the medieval period through the Elizabethan and the Jacobean period, exclusive of Shakespeare.

515. Shakespeare. Cr. 3

For English majors and others interested in more intensive study than is offered in ENG 220. Some attention to Shakespearean scholarship.

517. Literature of the English Renaissance: 1500-1660. Cr. 3

Survey of literature in all genres from Skelton through Milton, with an emphasis on non-dramatic poetry and prose.

518. Milton. Cr. 3

Emphasis on Milton's major poems, with some attention to his prose and to backgrounds.

519. Topics in Renaissance Literature. Cr. 3(Max. 9)

Studies of particular authors or groups of authors from 1500-1660 or of literary works from period, generic, thematic or methodological focuses. Topics to be announced in *Schedule of Classes*.

520. Restoration and Eighteenth Century Literature. Cr. 3

A survey of English literature from 1660 to 1784. Readings from the major works of Dryden, Pope, Swift, Thomson, and Johnson. Emphasis on intellectual milieu of the period.

521. Eighteenth Century Novel. Cr. 3

A survey of the eighteenth century British novel, with works selected from such authors as Fielding, Richardson, Smollett and Sterne.

523. British Drama: 1660-1800. Cr. 3

Drama from Dryden to Sheridan, studied through representative types - comedy of manners, heroic drama, sentimental comedy, tragedy, some ballad opera and farce.

524. Topics in Restoration and Eighteenth Century Literature. Cr. 3(Max. 9)

For students familiar with literary history of the period. Special topics for in-depth study of a genre, a movement or an author to be announced in *Schedule of Classes*.

525. Nineteenth Century Literature. Cr. 3

A survey of nineteenth century British literature, with works selected from such authors as Wordsworth, Keats, Dickens, Carlyle, Tennyson, Swinburne and Hardy.

526. Literature of the Romantic Period. Cr. 3

A survey of English literature from 1789-1832. Emphasis on the major poets (Blake, Wordsworth, Coleridge, Keats, Shelley and Byron), with some attention to the major essayists (De Quincey, Hazlitt and Lamb) and novelists (Austen and Scott).

527. Literature of the Victorian Period. Cr. 3

A survey of English literature from 1832-1901. Emphasis on major poets (Tennyson, Arnold, Swinburne), novelists (Dickens, Eliot, Hardy), and prose writers (Carlyle and Ruskin).

528. Nineteenth Century Novel. Cr. 3

A survey of the nineteenth century British novel, with works selected from such authors as Austen, the Brontes, Scott, Thackeray, Dickens, Eliot and Hardy.

529. Topics in Nineteenth Century Literature. Cr. 3(Max. 9)

Readings emphasize thematic, historic or aesthetic concerns in literature. Topics to be announced in *Schedule of Classes*.

530. Twentieth Century British Literature. Cr. 3

Selected works in all genres from 1900 to the present; emphasis on poetry and drama.

531. Twentieth Century British Novel. Cr. 3

Selected works of major novelists: Joyce, Woolf, Lawrence, Conrad.

532. Topics in Twentieth Century British Literature. Cr. 3(Max. 9)

Selected writers, themes, or movements: Eliot, Auden, Shaw, Lawrence; Bloomsbury, The Great War, the thirties. Topics to be announced in *Schedule of Classes*.

534. Topics in British Literature. Cr. 3(Max. 9)

British literature from specific perspectives such as generic or thematic. Writers from more than one period may be considered. Topics to be announced in *Schedule of Classes*.

540. American Literature to 1800. Cr. 3

A survey of American literature from the beginning through the Federalist period; transition from English/European heritages to ideas uniquely American.

541. American Renaissance: 1800-1865. Cr. 3

A survey of the major writers, themes and movements: Irving, Cooper, Emerson, Thoreau, Hawthorne, Melville, Whitman; Federalism and Jacksonian literature; transcendentalism, romanticism.

542. American Realism: 1865-1914. Cr. 3

A survey of the major writers, themes, movements: Dickinson, Twain, Crane, Howells, James; the local colorists, social critics, early

pragmatists.

- 543. Topics in American Literature Before 1914. Cr. 3(Max. 9)**
Generic or thematic perspectives on the literature of the period. Humor, the frontier, travel, Puritanism, transcendentalism, autobiography. Topics to be announced in *Schedule of Classes*.
- 545. Modern American Literature. Cr. 3**
A survey of major writers, themes, movements since 1914: Stevens, Frost, Eliot, O'Neill, Anderson, Hemingway, Faulkner; the world wars, modernism and post-modernism.
- 546. Topics in American Literature Since 1914. Cr. 3 (Max. 9)**
Twentieth century literature from specific perspectives, such as generic, historical, thematic. Topics to be announced in *Schedule of Classes*.
- 547. Afro-American Literature. Cr. 3**
Historical approach to the development of Afro-American literature; how writers work with the aesthetics and ideas of their age.
- 548. Topics in Afro-American Literature. Cr. 3(Max. 9)**
Thematic, generic or historical perspectives: topics such as early black writers, Harlem Renaissance, Afro-American poetry, contemporary black writers. Topics to be announced in *Schedule of Classes*.
- 549. Topics in American Literature. Cr. 3 (Max. 9)**
Thematic, generic, or historical perspectives; may cover writers of different periods. Topics such as American humor, the theme of work, Southern literature, the city and the American factory in literature. Topics to be announced in *Schedule of Classes*.
- 550. Topics in English and American Literature. Cr. 3(Max. 9)**
Generic, historical or thematic perspectives. Topics such as the romantic hero, the divided self in modern literature; to be announced in *Schedule of Classes*.
- 552. Irish Literature. Cr. 3**
Major twentieth century Irish writers in the context of Irish history and politics: W.B. Yeats, James Joyce, major dramatists.
- 553. Topics in Poetry. Cr. 3(Max. 9)**
Topics such as myth and modern poetry in Eliot, Yeats, Pound, Stevens, and Crane. Topics to be announced in *Schedule of Classes*.
- 554. Topics in Drama. Cr. 3(Max. 9)**
Thematic or historical or other focus. Topics such as non-verbal elements in drama, nineteenth and twentieth century drama. Topics to be announced in *Schedule of Classes*.
- 555. Topics in the Novel. Cr. 3(Max. 9)**
The novel from such perspectives as sub-genre, theme, comparison among periods or across nationalities, concentration on a major author. Topics to be announced in *Schedule of Classes*.
- 556. Modern Drama. Cr. 3**
European, British and American plays from Ibsen (1870) to the recent past.
- 557. Literary Modes. Cr. 3(Max. 9)**
Studies in tragedy, comedy or satire. Topics to be announced in *Schedule of Classes*.
- 558. The Art of Translation. Cr. 3**
Methods and theories of translation, analysis of distinguished literary translations and student practice. Required of all students in the Comparative Literature Program.
- 559. Topics in Comparative Literature. Cr. 3(Max. 9)**
The study of literary texts from an international point of view. Topics to be announced in *Schedule of Classes*.

- 560. (ANT 608) Studies in Folklore. Cr. 3**
Basic concepts, methods, and issues of folklore study. Comparative and interdisciplinary approach to problems of definition, form, creation, performance, transmission, and cultural, historical, psychological and literary significance.
- 562. Folk Narrative. Cr. 3**
Analysis of folk narrative genres such as myth, epic, folktale, legend, anecdote, and personal experience narrative for their verbal art and sociocultural significance.
- 563. Traditional Folk Song. Cr. 3**
Survey of the traditional folk songs of both Anglo-American and Afro-American culture, and theories regarding them. Previous musical knowledge not required.
- 564. Proverb, Riddle and Speech Metaphor. Cr. 3**
Survey of the major forms of speech metaphor and speech play arising as part of every day discourse; examined in their cultural and social contexts.
- 565. Folklore and Literature. Cr. 3**
Identification and analysis of the interrelations of folklore and literature.
- 567. Topics in Folklore and Folklife. Cr. 3(Max. 9)**
Topics such as fieldwork; analysis of collected oral literature; study of separate genres of oral literature, social folk custom, and folk arts. Topics to be announced in *Schedule of Classes*.
- 570. Introduction to English Linguistics. (LIN 570). Cr. 3**
Basic concepts and methods of modern linguistics and their application to the study of the English language.
- 571. Historical Development of the English Language. (LIN 571). Cr. 3**
The development of the English language from its beginning to the present.
- 572. Contemporary Development of Language. (LIN 572). Cr. 3(Max. 9)**
Objective analysis of contemporary American English. Syntax, phonology, morphemics, semantics. Structural, transformational, tagmemic stratificational approaches. Topics to be announced in *Schedule of Classes*.
- 573. Traditional Grammar. (LIN 573). Cr. 3**
Comprehensive analysis of English sentence structure and parts of speech using the terminology and descriptive approach of traditional grammar.
- 574. (ANT 530) The Structure of Language: Grammar. (LIN 530). Cr. 3**
Prereq: ANT 529 or consent of instructor. The theory of grammatical systems examined through analysis of sentence and word formation in a variety of human languages. Diversity and universals in grammar discussed and various theories of syntax reviewed.
- 575. Theory of English as a Second Language. Cr. 3**
Detailed examination of theories of language and language acquisition relevant to the non-native speaker of English. Review of research in language acquisition and language learning.
- 576. American Dialects. Cr. 3**
Survey of chief social and geographic dialects of American English and introduction to theory of language variation.
- 579. Writing Theory. Cr. 4**
Analysis of the principles, purposes, types and modes of expository prose.

580. (ENG 305) Technical Report Writing I. Cr. 3

Prereq: engineering students, successful completion of English Proficiency Exam, sophomore standing; all others: ENG 102 or equiv. and sophomore standing. Basic technical writing skills and procedures for preparing technical reports.

581. (ENG 306) Technical Report Writing II. Cr. 3

Prereq: ENG 580. Intermediate technical report writing and basic technical presentation skills.

587. Poetry Writing Workshop. Cr. 3(Max. 6)

Intermediate course in the writing of poetry, conducted on a seminar basis; discussion and criticism of the work of students in the course. Frequent individual conferences.

588. Fiction Writing Workshop. Cr. 3(Max. 6)

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.

589. Writing for Theatre, Film and Television. (SPT 513). Cr. 3 (Max. 6)

Prereq: ENG 283 or consent of instructor. Comparative study of scripts for stage, radio, television and motion pictures; practice in writing an original script or essay on some phase of contemporary dramatic form. Actual production of some scripts in experimental theatre and radio studios of the Speech Department.

590. Directed Study. Cr. 1-3 (Max. 6)

Prereq: undergrad., 3.0 h.p.a.; written proposal submitted to chairperson in semester preceding proposed study, accompanied by supporting statement from instructor; consent of chairperson. 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.

601. English Institute for Teachers of Language and Literature. Cr. 4(Max. 12)

Prereq: bachelor's degree with a concentration in English. For prospective and in-service teachers. Topics to be announced in *Schedule of Classes*.

610. Introduction to Old English. Cr. 3

The fundamentals of language and grammar and the literary analysis of Old English texts.

680. Advanced Creative Writing. Cr. 3(Max. 6)

Prereq: grade of B or better in any 500-level creative writing course or consent of instructor after submission of manuscript. Writing in any of the creative forms. Work by students presented in seminar meetings; individual conferences.

701. Introduction to Graduate Studies in Literature. Cr. 3

Required for 700-level English seminars. Variety of individual projects on library reference tools. Techniques of scholarly writing, descriptive bibliography and documentation.

703. Survey of Research in Writing. Cr. 4

Prereq: ENG 701. Reading and interpreting significant literature in the interdisciplinary study of expository writing; becoming familiar with bibliographical sources and research methodology of the several disciplines.

704. The Teaching of Writing. Cr. 3

Prereq: ENG 701. Theory and practice of the teaching of expository writing: intensive writing, presentation of successful teaching techniques, and review of research on written composition.

705. Studies in Criticism. Cr. 4(Max. 12)

Prereq: ENG 701. Analysis of critical texts and ideas in specific

writers and periods. Topics to be announced in *Schedule of Classes*.

710. Studies in Old English. Cr. 4(Max. 12)

Prereq: ENG 610 and 701 or consent of instructor. Selected topics such as *Beowulf*, poetry of the *Exeter Book*, gnomic literature, saints' lives. Topics to be announced in *Schedule of Classes*.

711. Middle English Language and Literature. Cr. 4

Prereq: ENG 701. Development of Middle English language, dialects, c.1150 to c.1450. Selected literature.

712. Studies in Medieval Literature. Cr. 4(Max. 12)

Prereq: ENG 701. Selected topics, such as Arthurian legend, the alliterative revival, problems in Chaucer criticism. Topics to be announced in *Schedule of Classes*.

715. Studies in Shakespeare. Cr. 4

Prereq: ENG 701. Special problems in current scholarship and criticism.

716. Studies in Renaissance Literature. Cr. 4(Max. 12)

Prereq: ENG 701. Advanced studies of particular authors or groups of authors from 1500-1660, or of literary works from special sub-period, generic, thematic, or methodological focuses.

720. Studies in Restoration and Eighteenth Century Literature. Cr. 4(Max. 12)

Prereq: ENG 701. Studies of particular authors or genres. Topics to be announced in *Schedule of Classes*.

725. Studies in Romantic Literature. Cr. 4(Max. 12)

Prereq: ENG 701. Topics, such as Wordsworth and Coleridge, crisis and triumph of the romantic imagination, to be announced in *Schedule of Classes*.

726. Studies in Victorian Literature. Cr. 4(Max. 12)

Prereq: ENG 701. Poetry, non-fictional prose, drama, fiction. Topics to be announced in *Schedule of Classes*.

730. Studies in Twentieth Century Literature. Cr. 4(Max. 12)

Prereq: ENG 701. Problems in American or British literature. Topics to be announced in *Schedule of Classes*.

736. Studies in Poetry. Cr. 4(Max. 12)

Prereq: ENG 701. Topics, such as comparison of Auden and Yeats, D.H. Lawrence and Thomas Hardy, to be announced in *Schedule of Classes*.

737. Studies in Drama. Cr. 4(Max. 12)

Prereq: ENG 701. Topics such as Jacobean tragedy, Shaw and modern drama to be announced in *Schedule of Classes*.

738. Studies in the Novel. Cr. 4(Max. 12)

Prereq: ENG 701. Advanced study of the novel. Topics to be announced in *Schedule of Classes*.

739. Topics in English Literature. Cr. 4(Max. 12)

Prereq: ENG 701. Advanced studies in English literature from specific perspectives such as generic, historical or thematic. Topics to be announced in *Schedule of Classes*.

740. Studies in American Literature Before 1914. Cr. 4(Max. 12)

Prereq: ENG 701. Advanced study of such topics as Puritanism, transcendentalism, Hawthorne and Melville, American realism. Topics to be announced in *Schedule of Classes*.

741. Studies in American Literature Since 1914. Cr. 4(Max. 12)

Prereq: ENG 701. Advanced study of modern American poetry, prose and drama. Topics to be announced in *Schedule of Classes*.

742. Studies in American Literature. Cr. 4(Max. 12)

Prereq: ENG 701. Advanced study of topics in American literature

concerned with writers before and after 1914. Topics, such as naturalism, Southern literature, Oriental influences on American literature, to be announced in *Schedule of Classes*.

745. Studies in Afro-American Literature. Cr. 4(Max. 12)
Prereq: ENG 701. Advanced study of topics in Afro-American literature. Topics to be announced in *Schedule of Classes*.

755. Studies in Comparative Literature. Cr. 4(Max. 12)
Prereq: ENG 701 or consent of instructor. The interrelations of literatures: movements, genres, periods, themes and motifs. 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*.

759. Topics in English and American Literature. Cr. 4(Max. 12)
Prereq: ENG 701. Advanced studies in English and American literature from specific perspectives such as generic, historical or thematic. Topics to be announced in *Schedule of Classes*.

760. Folklore Theory. Cr. 4
Prereq: previous course in folklore and ENG 701 or consent of instructor. Historical approach to the development of folklore theory from the eighteenth century to the present day.

761. Folklore Methodology. Cr. 4
Prereq: previous course in folklore and ENG 701 or consent of instructor. Intensive survey of the methods and techniques of folklore collection and analysis. Emphasis on the preparation, organization and execution of fieldwork, as well as on the classification and analysis of folklore research.

762. Studies in Folk Narrative. Cr. 4(Max. 12)
Prereq: previous course in folklore and ENG 701 or consent of instructor. Emphasis on theoretical approaches to folk narrative such as folktales and culture theory, structuralism and folk narrative, folk narrative as performance. Topics to be announced in *Schedule of Classes*.

763. Studies in Traditional Folk Music. Cr. 4(Max. 12)
Prereq: previous course in folklore and ENG 701 or consent of instructor. Traditional folk song and music from specific perspectives, such as generic, historical, ethnic or theoretical. The ballad, the blues, the history of scholarship and theory. Topics to be announced in *Schedule of Classes*.

764. Studies in Minor Genres of Folklore. Cr. 4(Max. 12)
Prereq: previous course in folklore and ENG 701 or consent of instructor. Study of selected genres such as speech metaphors, forms of cultural and social communication. Topics to be announced in *Schedule of Classes*.

765. Studies in Folklore and Literature. Cr. 4(Max. 12)
Prereq: previous course in folklore and ENG 701 or consent of instructor. Advanced study of the interrelations of folklore and literature. Topics to be announced in *Schedule of Classes*.

767. Studies in Folklore and Folklife. Cr. 4(Max. 12)
Prereq: previous course in folklore and ENG 701 or consent of instructor. Folklore theory and techniques applied to the study of oral and written literature, social folk custom and folk arts. Topics to be announced in *Schedule of Classes*.

770. Studies in Modern English. Cr. 4(Max. 12)
Prereq: ENG 701. Examination of advanced structural theories and analyses, such as discourse analysis, semantic theory. Topics to be announced in *Schedule of Classes*.

773. Modern English Linguistics. Cr. 4
Prereq: ENG 701. Application of linguistic theory to modern English and to the study of composition.

774. Linguistic Stylistics. Cr. 4

Prereq: ENG 701. The study of variation in writing style by measuring linguistically identifiable phenomena; comparison between passages (and authors) with different purposes and effects.

775. Writing as Process. Cr. 4

Prereq: ENG 701. The study of the composing process according to theories of cognition developed by psychologists, linguists and writing theorists. Heuristics and measures, experimental approaches. Includes critical analysis and development of hypotheses by students.

776. Advanced Syntax. Cr. 4

Prereq: ENG 701. The study of expanded sentences, including clauses and verbal phrases. Deep analysis, transformations and meaning. Formal limits on rules. Grammatical theory. Study and practice in linguistic argumentation.

777. Discourse Analysis. Cr. 4(Max. 12)

Prereq: ENG 701. Analysis of inter-sentential relationships and of larger patterns. Implied and actual exchanges. Information ordering. Multi-level and intersectional analysis of expository prose. Topics to be announced in *Schedule of Classes*.

789. Workshop in Literature. Cr. 4

Prereq: ENG 701 and consent of instructor. Combination of independent directed study and seminar instruction on topics within a restricted area of interest. Topics to be announced in *Schedule of Classes*.

790. Directed Study. Cr. 1-8(Max. 8)

Prereq: written consent of adviser and graduate officer. Advanced work for superior English majors whose program of study cannot be adequately met by scheduled classes.

796. Research in English. Cr. 1-8(Max. 24)

Prereq: consent of director of graduate studies. Offered for S and U grades only. The grade Y will be assigned until student completes the final qualifying examination. Advanced reading and research in a student's field of specialization.

799. Master's Essay Direction. Cr. 3

Prereq: consent of adviser.

899. Master's Thesis Research and Direction. Cr. 1-8(8 req.)

Prereq: consent of adviser.

**999. Doctoral Dissertation Research and Direction.
Cr. 1-16(30 req.)**

Prereq: consent of doctoral adviser. Offered for S and U grades only.

ENVIRONMENTAL STUDIES

Curriculum and Co-Major

The program in environmental studies is an undergraduate and post-degree course of interdisciplinary study which leads to a bachelor's degree with co-major designation and a certificate. 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.

This program is designed to complement the normal undergraduate curriculum based upon a single academic major by counseling students in the selection of cognate studies. The assumption is that intellectual strength, rigor, and tools are dependent upon the successful completion of a strong, discipline-oriented, undergraduate major, but that the traditional major often leaves students with too narrow a base to successfully apply their skills toward alleviating problems of the real world. These problems require a view of the person and the environment as a multifaceted system in which the psycho-osciological, physical, biological, legal and moral aspects are intimately related.

To facilitate this education, the counseling strategy of the program is as follows: If the student majors in the physical sciences, the co-major will consist of a series of courses from a list of social science courses such as environmental law, psychology and education. If the student's principal interest is in the social sciences — sociology, business, economics, etc. — the co-major will consist of an appropriate sequence from the physical and biological sciences.

The program is concluded with two core courses, taken by all students which attempt to tie together all of the academic disciplines in so far as they are 'environmentally relevant' and to guide the student in a dignificant, environmentally oriented research or service project.

In addition to courses, the program offers students the opportunity for meaningful internships (for academic credit) in local government agencies, industry, business, schools, citizen group and voluntary organizations. These internships should serve the organization receiving the student as well as demonstrating to the student the realities and limitations of the academic experience. As a further supplement, the program offers its students (and the University community) a series of informal colloquia on current environmental topics — problems, successes, the human and social requirements in dealing with the environment, and potential job and career opportunities.

Transcript Notation: Fulfillment of the core requirement and electives (total of thirty-two 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 particular college to apply for this program. A declaration of Major form should be obtained and a major authorized in the junior year before formal admission into the program is allowed. However, first and second year students are encouraged to consult with the Program Director and 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 two seminars (eight credits) and six elective courses (twenty-four 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. Core requirements and electives of the environmental co-major may count towards satisfying group requirements of departmental majors.

Core Requirements

	credits
ENV 501 -- (I E 501) Environmental Core Course (PHY 511).....	4
ENV 502 -- Environmental Core Course II.....	4

COURSES OF INSTRUCTION¹ (ENV)

501. (I E 501) Environmental Core Course I: Systems Concepts in Environmental Science. Cr. 4

Prereq: junior standing or consent of director. Introduction to environmental problems, energy, resources, population and pollution. The environment as a system, concepts of feedback loops, exponential growth and decay. The applications of rational analysis to the prediction of the outcomes of human activities.

502. Environmental Core Course II: Environmental Impact, Field and Experimental Studies of the Environment. (PHY 512). Cr. 4

Prereq: ENV 501 or consent of director. Continuation of ENV 501. Environmental games and simulations; environmental impact statements and their legal, political and social framework. Group environmental research and service projects.



See page 633 for interpretation of numbering system, signs and abbreviations

FAMILY AND CONSUMER RESOURCES

Office: 160 Old Main

Acting Chairperson: Leora A. Shelef
Administrative Assistant: Jean Williams

Professors

Mary Jane Bostick, Esther D. Callard (Emerita), Marqueta C. Huyck (Emerita), Leora A. Shelef, Wallace T. Williams

Associate Professors

Jeanne A. Allen, Manetta Heidman (Emerita), L. Margaret Johnson (Emerita), Melissa Kaplan, Luella M. Lutz (Emerita), Douglas Powell, Sue M. Smock, Kathryn Urberg

Assistant Professors

Phyllis A. Ashinger, D. June Grossbart, Deborah McNeill, Thomas F. Nothhaft, Phyllis K. Sprague (Emerita), Catherine F. Sullivan, Mary Jane Van Meter, Margene Wagstaff, Therese Warburton (Emerita), Michael Zemel

Instructors

Pierrette Birge, Sheila Cathey, Carolyn Hooper

Lecturer

Jerri J. Kropp, Lillian E. Smith

College Of Lifelong Learning Liaison

Jason Gamlin

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 Department of Family and Consumer Resources is administratively divided into three divisions: Human Development and Relationships; Food Science and Human Nutrition; Design, Merchandising and Consumer Affairs.

The curricula in the department are designed to prepare professionals to work with individuals and families and to deal with family-related problems. In addition, the curricula emphasize 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 function as a supportive institution in human development. An important mission of the department is to prepare professionals to work toward improvement of the quality of life in Michigan and the nation, with

special emphasis on the urban environment.

Specifically, the department prepares professionals to engage in: health care delivery through the study of dietetics and nutrition; research in food science or nutrition; commercial, industrial and school food services; apparel design or fashion merchandising; interior design and housing; consumer education and related communications arts; and human development and family welfare. (A certificate program in child care requiring two years is offered by the Department through the College of Lifelong Learning.)

Facilities

The Consumer Affairs Area maintains a resource room in Old Main. 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 preschool laboratory is conducted as a participation and observation laboratory for experience with children two to five years of age. These modern laboratories are located in the former Merrill-Palmer facilities.

A kindergarten program is also run by the Department affording students the opportunity to observe and interact with children from birth through age five.

Three food science and nutrition research laboratories are available for advanced classes, and for use by graduate students and faculty for individual research. The facilities of the Medical Center are available for some supervised field experience in Dietetics and 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 222).

BACHELOR OF SCIENCE in Family and Consumer Resources

Group requirements for this degree correspond with Liberal Arts group requirements (see page 222), with two exceptions: (1) there is no foreign language requirement; and (2) twenty-four credits in natural science are required.

Major Requirements: To meet requirements for either of the above degrees, a student must complete at least thirty-two credits in one of the curricula; however, the minimum credit requirement may be higher for specific programs.

A suggested four year curriculum 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 a Consumer Affairs adviser.

Division of Human Development and Relationships

This curriculum focuses on 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 investigate human development, or serve infants, young children, families, and the aged. Upon consultation with the adviser, courses may be elected from the following:

Family and Consumer Resources 180, 186, 272, 282, 371, 381, 384, 386, 387, 389, 480, 482, 581, 585, 586, 671, 672, 673, 684, 685, 688, plus other FACR division courses upon advisement: 100, 203, 606, 686

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 120 required for the regular B.S. degree in family and consumer resources.

Two Year Program in Child Care: Students may take a planned sequence of sixty credits which will prepare them for work in child care facilities.

Division of Food Science and Human Nutrition

This division is concerned with preparing professionals to deal effectively with the maintenance and improvement of human health through research in and the study of food science, nutrition, and food delivery systems. Curriculum requirements for each option are outlined as follows:

— Dietetic Programs

Two B.S. degree programs are offered:

General Dietetics: This curriculum is designed to prepare students with the theoretical knowledge gained through courses in food science, nutrition science, food systems management, chemistry and the biological sciences, for the application of nutritional science to the health care of people. Upon completion of the curriculum, to become a registered dietitian, graduates must complete an American Dietetic Association accredited internship in a hospital or other accredited health agency. Graduates who do not complete an accredited internship must earn a master's degree in the area of foods and nutrition, then complete a supervised six month work experience under a registered dietitian or nutritionist. The completion of the internship or the master's degree is required before eligibility to write the registration examination given by the American Dietetic Association.

The department began a coordinated program in medical dietetics in the fall of 1980. Clinical experiences and didactic course work prepare graduates for eligibility to write the registration examination upon completion of the bachelor's degree. Students must be of junior standing to enter this program; requirements for the coordinated program will differ from the traditional dietetic requirements. An adviser should be consulted in program planning. The following courses are required:

Family and Consumer Resources 100, 213, 214, 221, 333, 434, 513, 525, 531; upon advisement: 355, 526, 551, 685

Anthropology 210

Biology 100 or 101, 187, 220

Business Administration: MGT 559, 570 (or Psychology 350)

Chemistry 107, 108, 220, 560

Economics 101

Psychology 102

Sociology 200

Statistics 102 or Computer Science 100

Instructional Technology 511

Coordinated Program in Medical Dietetics: This program in dietetics focuses on primary care. The curriculum is designed to coordinate classroom learning and practical clinical experience necessary for beginning practice as a medical dietitian. Therefore, the entire preparation of the dietitian is based in the college setting and is planned for student completion within the four years necessary to attain a bachelor's degree. More than 120 credits are required due to the clinical component and professional requirements.

Application is made during the sophomore year with acceptance contingent upon completion of pre-professional courses and meeting other admissions criteria.

Upon completion of the program, the student receives the degree, Bachelor of Science in Medical Dietetics, and is also eligible for membership in The American Dietetic Association and may take the national registration examination for certification of professional status.

An adviser should be consulted in program planning of pre-professional courses and for application for the professional program. Transfer students must meet the pre-professional requirements through verification that courses taken before transfer are equivalent to those offered at Wayne State University. The following courses are required:

Pre-Professional

Family and Consumer Resources 100, 213, 214, 221, 513

Biology 101, 187, 220

Chemistry 107, 108, 220, 560

English 102, 303

Psychology 102 or Sociology 200

Economics 101, 102

Anthropology 210 or Sociology 200

Statistics 102

Liberal Arts group requirements and electives specified for graduation

Professional

Family and Consumer Resources 321, 322, 421, 422, 434, 523, 525, 535, 622, 685

Instructional Technology 511

Management 559

— Nutrition and Food Science

This curriculum is designed for science-oriented students who are interested in the various Food and Nutrition professions. Students are prepared for these professions by the integration of chemistry and the biological sciences with courses in food science and nutrition. Employment opportunities are available in food manufacturing, quality control, research and development, public health, and community education. Upon completion of the program the student receives the degree Bachelor of Science in Nutrition and Food Science. The following courses are required:

Family and Consumer Resources 100, 213, 214, 221, 413, 513, 523, 616, 617, 622, 685, and 12 to 15 additional credits in Food Science and Human Nutrition

Anthropology 210

Biology 100, or 101 and 102; 187, 220, 525

Chemistry 107, 108 and either 312 or 510, 311 and 132, 220, 560

Economics 101 or 102

English 102, 301 or 303

Psychology 102

— Food Systems Management

This is a curriculum for those interested in managerial positions in a variety of food service establishments. The student is provided with skills in personnel management, equipment, food, and materials management, cost control and other data processing systems. Employment opportunities include university or school food services, industrial and commercial food service systems, hospitals, nursing homes or extended care food service operations. An adviser should be consulted in program planning. The following courses are required:

Family and Consumer Resources 100, 203 or 221, 213, 214, 231, 331, 333, 434, 513, 531, 535, upon advisement: 592, 685

Accounting 301, 302

Biology 103, 220

Finance and Business Economics 529

Chemistry 102, 103

Computer Science 100

Management 559, 570, 574

Statistics 102

Liberal Arts group requirements and electives to total 180 credits.

Division of Design, Merchandising, and Consumer Affairs

Curricula in this division allow the student to gain a liberal education as well as the opportunity for a professional concentration in special fields. Because the basic courses of each area have their foundation in the economic, sociological, scientific, legal and aesthetic aspects of consumer decisions, it is of value to the student to learn the interrelationships of design, consumer buying behavior, and the merchandising of goods. Each professional curriculum has its own options as outlined below.

— Interior Design

This curriculum prepares students for professional interior design practice with interior design studios, governmental agencies, manufacturers of home furnishing and equipment, home planning firms and other organizations concerned with the creative and functional aspects of the interior environment. Appropriate secondary school preparation should include study in geometry, environmental studies, behavioral sciences, and design. An adviser should be consulted in program planning. The following courses are required:

Family and Consumer Resources 241, 260, 261, 361, 460, 461, 560, 565, 660, 661, 665, 685; upon advisement: 100, 656, 693.

Art 105, 120, 121, 220, 231, 235, 435, 436, 437, 535.

Art History: two courses

Business Administration: Marketing 530; Management 566

Engineering Technology 201

Economics 102

Philosophy 101

Sociology 200, 550

Speech: SPB 200

— Clothing and Textiles

This curriculum includes the study of psychological, sociological, economical, and physiological aspects of clothing and textiles. It provides the basic understanding and skills for students in apparel design, production and marketing. The program includes courses in

textiles, clothing construction, historical and socio-psychological aspects of clothing and merchandising practices related to fashion goods. Students elect the apparel design or merchandising option; forty credits in FAC courses are required.

Apparel Design Option: Successful completion of this curriculum enables students interested in the creative aspects of clothing to develop competencies needed for careers in apparel design and related fields. Possible careers include designing and patternmaking, home economics, and custom tailoring. In addition to required courses, students are encouraged to take supporting courses in art history, sociology, and anthropology. An adviser should be consulted in program planning. The following courses are required:

Family and Consumer Resources 100, 241, 242, 340, 341, 346, 443, 542, 543, 544, 545, 685; upon advisement other FAC courses may be selected.

Art: 15-18 credits including ART 105, 120, 121

Fashion Merchandising Option: This curriculum develops understanding and practical skills related to the buying and selling of fashion merchandise. Students gain insights into the various aspects of the apparel industries including marketing, sales, styling, publicity, advertising, visual presentation, fashion coordination and merchandising. Possible careers include positions in management, buying and fashion promotion. An adviser should be consulted in program planning. The following courses are required.

Family and Consumer Resources 100, 241, 242, 340, 346, 543, 546, 547, 549, 592, 685
Business Administration: 15-18 credits including Marketing 530

— Consumer Affairs and Housing

This curriculum prepares students for positions in business and government agencies concerned with consumer information, education or research. Selected courses consider socio-economic influences, technological advances, and the behavioral aspects of consumerism as well as topics relevant to consumers in their interactions with the marketplace, industry, and government. Appropriate course selection allows students to prepare for specialization in the areas of: consumer economics, consumer protection, food marketing, consumer housing and equipment, and consumer information related to radio-television and print media research. An adviser should be consulted in program planning. The following courses are required:

Family and Consumer resources 350, 351, 355, 356, 455, 456, 551, 685, plus other FAC courses upon advisement: 203, 213, 214, 221, 241, 347, 500, 592; and depending on the area of interest (in consultation with an adviser) courses should be selected from: 180, 241, 413, 434, 513, 543, 549, 560, 606, 616, 617, 651, 656

English: six credits beyond the group requirement

Economics 101, 102

Business Administration: five or six courses including MKT 530, ACC 351, MGT 559, and other courses recommended by the adviser

Humanities: three credits beyond the group requirement

Journalism: SPJ 210, 446

Speech: SPB 200

Psychology 101, 350 Computer Science: one course

Master of Arts or Master of Science in Family and Consumer Resources

Plan A: Twenty-four credits in course work, plus a thesis.

Plan B: Thirty credits in course work, plus an essay.

The Master of Science in Family and Consumer Resources degree with specialization in nutrition, food science, dietetics, or human development 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 certificate in gerontology may be earned by combining courses in the various divisions of this department with designated university courses. A final oral examination is required of all students pursuing Plan A; upon the adviser's recommendation, 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 communication skills.

— 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.

Human Development and Relationships: Undergraduate preparation should include approximately fourteen 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.

Food Science and Human Nutrition: Undergraduate preparation should include a minimum of fourteen credits in science, nutrition, and/or food systems management, with supporting courses in chemistry, microbiology, economics, physiology, psychology, and sociology.

Interior Design and Housing: Undergraduate preparation must include a minimum of ten 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.

Apparel Design and Fashion Merchandising: Undergraduate preparation must include a minimum of ten credits in the areas of merchandising, clothing and textiles, with supporting courses in art (including basic design), science, social science, or business.

Consumer Affairs: Undergraduate preparation must include a minimum of ten credits in consumer affairs or equivalent, 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.

The Graduate Record Examination is required of all students.

Candidacy must be established by the time twelve 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 Chairperson of the Department.

COURSES OF INSTRUCTION¹ (FAC)

Human Development and Relationships

180. Individual Development Through Family Interaction. Cr. 3
Life span development from a bio-psycho-social perspective. Applied aspects of development and interactional research included.

186. Survey of Early Child Care. Cr. 3
Focus on infants and young children from the urban area. Field observations in homes and in community child care programs.

272. Experiences with the Young Child: Laboratory. Cr. 2
Prereq: satisfactory health record, TB test within the last six months; coreq: FAC 282, student participation in day care center.

282. Experiences with the Young Child. Cr. 2
Coreq: FAC 272. Credit only upon completion of FAC 272. Growth and development of the child, age 2-1/2 to 5; methods of care and guidance in a group setting.

371. Experiences with the Infant and Toddler: Laboratory. Cr. 2
Prereq: satisfactory health record, TB test within the last six months; coreq: FAC 381. Direct participation in infant and toddler care within the center setting; observation of parent-infant interaction.

381. Experiences with the Infant and Toddler. Cr. 2
Coreq: FAC 371. Growth and development of the child from birth to two and one-half years of age.

384. Experiences with School-Age Children. Cr. 3
Prereq: FAC 282 or consent of instructor. Students work directly with selected school-age children. Laboratory experiences related to child development principles in lecture.

386. Parent-Child Interactions. Cr. 3
Prereq: FAC 180 and either 282 or 381. Theory and research of interaction effects between child and parents. Focus on normal developmental concerns, infancy through adolescence: discipline, sibling rivalry, sex-role identification.

387. Approaches to the Study of the Family. Cr. 3
Prereq: FAC 180. A systems perspective and observational experiences used to study family structure and function.

389. Day Care Administration. Cr. 3
Prereq: sophomore standing. Applied principles relating to the operation and management of day care facilities. Technical and financial aspects.

480. Human Development: Theory and Methodology. Cr. 3
Prereq: 2.0 h.p.a. or higher in FAC 180. Historical and current theories of development; their corresponding research strategies.

482. The Young Child and the Physical Environment. Cr. 3
Influence of space and physical setting on child behavior. Application to an optimal learning environment for infants and young children. Laboratory experiences related to material covered in lecture.

487. The Elderly and the Family. Cr. 3
Prereq: FAC 180 or consent of instructor. Aged persons and their relationships with family members. Patterns, problems and strategies for maintaining satisfying relations with family.

¹ See page 633 for interpretation of numbering system, signs and abbreviations

580. Maturation and Development of the Individual. Cr. 3

No credit after FAC 180. Infancy through adolescence; critical problems in each period; development of personal identity.

581. Physical Development. Cr. 3

Physical growth from conception through aging. Focus on providing information needed by those working in applied settings with children and adults.

585. Child Development Principles Applied to Preschool Programming. Cr. 3

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.

586. Adult Relationships in Care Settings. Cr. 3

Prereq: senior or graduate standing or consent of instructor. Psychosocial approach to staff development and relationships in formal, nonfamilial settings that foster human development (preschools, schools, senior centers). Principles of staff development, processes of professional socialization, staff-client interaction, community relations.

588. Human Development Practicum: Parents. Cr. 3

Prereq: FAC 386 or consent of instructor. Relating human development principles to problems of parent-child interaction. Students will have direct involvement with child-parent dyads in child development laboratories.

671. Human Development: Infancy. Cr. 3

Prereq: senior standing, FAC 381 and 480; grad. coreq: 771. Prenatal and infancy to three years. Theories and research in the areas of motor, perceptual, cognitive, language and socio-emotional development. Implications for child nurture and guidance within family and group settings.

672. Human Development: Early, Middle and Late Childhood. Cr. 3

Prereq: FAC 480 or consent of instructor; grad. coreq: 772. Theory and recent research on the social, cognitive and emotional development of children aged 3 to 12 years. Implications for those working with children.

673. Human Development: Adulthood and Aging. Cr. 3

Prereq: FAC 480 or consent of instructor; grad. coreq: 773. Theories, recent research and issues in development from early adulthood through middle and late adulthood.

684. Developmental Assessment of the Young Child. Cr. 3

Prereq: FAC 480 or equiv., satisfactory health record and TB test within last six months. Assessment of the young child, ages three to five, through systematic observation and testing within the preschool laboratory, or, with consent of instructor, in the field.

686. Studies in Child Rearing. Cr. 2

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.

688. New Perspectives in Human Development. Cr. 2(Max. 4)

Prereq: consent of instructor. Topics to be announced in *Schedule of Classes*.

771. Human Development: Readings in Infancy. Cr. 1

Prereq: graduate standing; coreq: FAC 671. Advanced theoretical and research readings in development in children from birth to three years. Readings discussed in seminar.

772. Human Development: Readings in Early, Middle and Late Childhood. Cr. 1

Prereq: graduate standing; coreq: FAC 672. Advanced theoretical and research readings assigned in children from early and middle through late childhood. Readings discussed in seminar.

773. Human Development: Readings in Adulthood and Aging. Cr. 1

Prereq: graduate standing; coreq: FAC 673. Advanced theoretical and research readings assigned in development in adolescence, adulthood and aging. Readings discussed in seminar.

774. Human Development Practicum: Infancy. Cr. 3

Prereq: satisfactory health record; FAC 671 or equiv. Orientation to research methods in infant development. Experience in infant testing, measurement and assessment.

775. Human Development Practicum: Young Child. Cr. 2

Prereq: consent of instructor; satisfactory health record and TB test within the last 6 months. Supervised experiences with children aged 2 to 5 years; emphasis on problems in child development and guidance.

776. Human Development Practicum: Adulthood and Aging. Cr. 3

Prereq: FAC 673 or consent of instructor. Experience in community service with agencies serving the aged. Planned in response to specific professional goal of student.

783. Development of Social Relations. Cr. 3

Prereq: consent of instructor and introductory course work in human development or equiv.

784. Developmental Assessment of the Infant and School Age Child. Cr. 3

Prereq: FAC 684. Ecological approach to the evaluation and assessment of social, physical, and cognitive developmental changes. Emphasis on parent-child interactions, peer-peer interactions, the consistency of behavior across settings, as well as coping skills and compensatory behaviors.

786. Intergenerational Relations: Adult Children and Their Elderly Parents. Cr. 3

Needs of the elderly are placed in the context of relations with adult children.

787. Dynamics of Family Interaction. Cr. 3

Prereq: consent of instructor. Several theoretical perspectives utilized to view family processes of communication, conflict resolution, decision making, and problem solving.

788. Social Policy and Human Development. Cr. 3

Prereq: one course from the following (or equiv.): FAC 774, 775, or 776. Impact of government and institutional policies on families, cross-cultural perspectives. Focus on child-bearing, care of young children and the aging; life crises.

Food Science and Human Nutrition

203. Nutrition and Man. Cr. 3

Food as a carrier of nutrients; food availability; facts of nutrient utilization including digestion, metabolism and excretion. Patterns of food consumption based on biological, psychological and social needs; and anthropological findings.

213. Introductory Food Science. Cr. 2

Coreq: FAC 214. Chemical, physical and biological properties of foods which affect their keeping quality, nutritional and organoleptic values. For students interested in the scientific study of foods.

214. Introductory Food Science Laboratory. Cr. 2

Coreq: FAC 213. Material fee as indicated in *Schedule of Classes*. Experimental study of principles discussed in FAC 213. For students interested in the scientific study of food.

221. Human Nutrition. Cr. 3

Prereq: CHM 103 or CHM 220 and BIO 187, or consent of instructor. Principles of the science of nutrition. Emphasis on physiological requirements of nutrients for human growth, development and maintenance within the life cycle.

231. Introduction to Food Service Systems Management. Cr. 3

Institutional food service systems: principles of organization and management, menu planning, sanitation and safety, career opportunities, and professional development.

321. Medical Dietetics I. Cr. 6

Prereq: completion of all pre-professional courses as specified in course outline. Open only to medical dietetics majors. Material fee as indicated in *Schedule of Classes*. Introduction to coordinated classroom and clinical study of dietetic practice. Focus on patient/health care delivery problem in a primary care setting.

322. Medical Dietetics II. Cr. 8

Prereq: FAC 321. Open only to medical dietetics majors. Material fee as indicated in *Schedule of Classes*. Continuation of FAC 321. Focus on patient health care delivery problems in both acute care and primary care settings.

331. Equipment Selection, Layout and Design. Cr. 3

Prereq: FAC 231. Equipment selection and facility design for optimum utilization of resources in food service systems.

333. Quantity Food Purchasing and Cost Control. Cr. 3

Prereq: FAC 331. Principles and methods for purchasing food in quantity. Practical experiences in institutional settings. Tours included; uniform required.

413. Food Preservation. (FAC 713)(CHE 613). Cr. 3 or 4

Prereq: BIO 220 or equiv., FAC 213 or equiv., CHM 220 or equiv., or consent of instructor. Material fee as indicated in *Schedule of Classes*. Fundamentals of food preservation: refrigeration, freezing, thermal processing, dehydration and concentration, salting and smoking, chemical preservation, radiation preservation, fermentation.

421. Medical Dietetics III. Cr. 8

Prereq: FAC 322. Open only to medical dietetics majors. Material fee as indicated in *Schedule of Classes*. Continuation of FAC 322. Focus on patient/health care delivery problems in both acute care and primary care settings.

422. Medical Dietetics IV. Cr. 9

Prereq: FAC 421. Open only to medical dietetics majors. Material fee as indicated in *Schedule of Classes*. Continuation of FAC 421. Focus on management of nutritional care in three selected health care delivery systems.

434. Cultural and Economic Aspects of Foods. Cr. 3

Material fee as indicated in *Schedule of Classes*. Cultural and economic interrelationships of food for different socio-economic groups and individuals.

513. Advanced Food Science. Cr. 4

Prereq: FAC 213 or equiv., CHM 220. Material fee as indicated in *Schedule of Classes*. Advanced study of the chemical, biological and physical properties of foods.

514. Advanced Food Science Laboratory. Cr. 2

Coreq: FAC 513. Material fee as indicated in *Schedule of Classes*. Experimental study of the principles discussed in FAC 513.

523. Nutrition and Metabolism. Cr. 4

Prereq: FAC 221, BIO 187 or equiv., CHM 224 or equiv. The physio-biochemical properties of nutrients and their bionutritional interrelationships at the cellular and sub-cellular level. Carbohydrate, protein, and lipid metabolism and the role of vitamins and minerals in these metabolic processes.

525. Nutrition and Disease. Cr. 3

Prereq: FAC 523. Application of the principles of biochemistry and physiology in the study of nutrient metabolism as altered by disease. The physio-biochemical basis for diet in the treatment of disease. May include some field experiences or clinical assignments. Units on team approach to patient care also included.

526. Practicum in Nutrition. Cr. 2

Prereq: FAC 525. Offered for S and U grades only. Open only to seniors. Supervised participation in professional experiences in community agencies or nutrition clinics, diet counseling for individuals and small groups included.

531. Quantity Food Production and Service. Cr. 3

Prereq: FAC 331 and 333. Uniforms required. The laboratory is in an institutional setting. Standards, principles, and methods of preparing and severing quality food in quantity.

535. Organization and Management of Food Service Systems. Cr. 3

Prereq: FAC 531. Systems approach to planning, organizing, controlling and evaluating managerial resources.

616. Food Standards and Quality Control. Cr. 2

Prereq: FAC 213 or equiv., CHM 220 or equiv., or consent of instructor. No credit after FAC 716. National and international food law, interpretations of regulatory food standards and determination of conformity of food products to them. Methods of food inspection.

617. Food Standards and Quality Control Laboratory. Cr. 2

Prereq: one course each in food science, organic chemistry and microbiology, or consent of instructor; coreq: FAC 616 or 716. Material fee as indicated in *Schedule of Classes*.

622. Nutrition Self-Studies and Analysis. Cr. 3

Prereq: FAC 523 or consent of instructor. Material fee as indicated in *Schedule of Classes*. Experience in following a prescribed diet, biological sample collection, laboratory analytical procedures, data interpretation, working with laboratory animals. Emphasis on dietary and biochemical assessment.

629. Maternal, Infant and Child Nutrition. Cr. 3

Prereq: FAC 525 or consent of instructor. Biological growth and nutritional requirements from the fetal stages of development through adolescence. Nutrition care of pregnant women, infants and pre-school children.

651. History of Foods. Cr. 3

Prereq: senior or graduate standing and consent of instructor and adviser. Origins of food and food patterns of historical significance and their relationship to the art, culture and economics of their time.

713. (FAC 413) Food Preservation. Cr. 3 or 4

Prereq: one course each in food science, organic chemistry and microbiology or consent of instructor. Material fee as indicated in *Schedule of Classes*. Fundamentals of food preservation: refrigeration, freezing, thermal processing, dehydration and concentration, salting and smoking, chemical preservation, radiation preservation, fermentation.

716. Food Standards and Quality Control. Cr. 2

Prereq: FAC 513 and 514 or consent of instructor. No credit after FAC 616. National and international food law. Interpretation of

regulatory food standards and determination of conformity of food products to them. Methods of food inspection.

721. Nutritional Assessment in the Life Cycle. Cr. 3

Prereq: FAC 525, CHM 560 or equiv., BIO 187. The biochemical and physiologic basis for determining nutritional status of individuals in different physiologic states throughout life cycle. Nutritional standards in light of current epidemiologic data and scientific research. Issues in food, feeding practices and nutrient imbalances.

726. Practicum in Nutrition. Cr. 2

Prereq: FAC 525. Offered for S and U grades only. Open only to graduate students. Supervised participation in diet counseling in community agencies or nutrition clinics.

735. Organization and Management of Foodservice Systems. Cr. 4

Prereq: FAC 531 or equiv. and consent of instructor. No credit after FAC 535. Systems approach to planning, organizing, controlling, and evaluating managerial resources. Uniform required for field work.

Interior Design and Housing

260. Introduction to Interior Design and Housing. Cr. 3

Functional, aesthetic, financial and psychological aspects of the home and its furnishings, problems in evaluating floor plans and selecting and arranging furnishings.

261. Interior Design Studio I. Cr. 4

Prereq: ART 105, FAC 260, or six credits in graphic communication. Presentation techniques; introduction to contemporary media and methods used in the preparation of presentation boards: layout, rendering, matting and lettering.

361. Interior Design Studio II. Cr. 4

Prereq: FAC 260, 261 and 241, ART 105, ART 120, ART 121, E T 201 or ART 231. Open to CLL students with written consent of instructor. Fundamental knowledge of color lighting and space planning, understanding of their application to the solution of interior residential problems and the use of skills for professional presentation.

460. Introduction to Environmental Design. Cr. 3

Prereq: three courses in sociology and/or psychology. Functional basis of design, theories of proxemics and anthropometrics. Human factors, thermal conditions, color, and light as they affect human comfort and performance.

461. Interior Design Studio III. Cr. 4

Prereq: FAC 361, ART 220, ART 235 or equiv. Intermediate level exploration and synthesis of lighting, color, human factors, space planning, selection of furnishings; application to the interior environment using skills for professional presentations.

465. Multiple Dwellings. Cr. 4

Prereq: E T 201, FAC 260, FAC 460. Examination of the macro and micro aspects of the environment as related to multiple residential design. Preparation of sequential drawings of the design solution. Lecture and studio.

560. History of Furniture I. Cr. 3

Prereq: junior standing or successful completion of two courses in art history or consent of instructor. Material fee as indicated in *Schedule of Classes*. For Interior Design majors. History of furniture from ancient periods to late neo-classic periods.

565. Interior Design Studio IV. Cr. 3

Prereq: completion of first two years of interior design curriculum, FAC 460 or consent of instructor. Materials and systems. Understanding interior design systems and materials, and practical

applications to the interior design process.

660. History of Furniture II. Cr. 3

Prereq: FAC 560 or consent of instructor. For Interior Design majors. History of furniture from the Victorian period through the post-World War II era.

661. Interior Design Studio V. Cr. 4

Prereq: FAC 460, 461, 560, 565, ART 435, ART 436, ART 437. For interior design majors. Advanced problems in residential and contract design; completes interior design studio sequence for undergraduates.

665. Interior Design: Business Principles and Practices. Cr. 2

Prereq: senior or graduate standing. Examination of different types of business formations and their characteristics; professional practices and procedures; ethical behavior, legal and insurance aspects.

760. Research in Environmental Design. Cr. 3

Prereq: three courses in sociology and/or psychology. Experimental and theoretical work on the influence of the physical environment on human behavior: group and institutional setting. Individual research problems, verbal and graphic, applied to sample behavior settings.

761. Interior Design Studio VI. Cr. 4(Max. 8)

Prereq: successful completion of undergraduate program in interior design or FAC 661. Graduate level design experiences allowing topical design specialization.

Consumer Affairs

350. Consumer Resources Management. Cr. 3

Introduction to management concepts: values, standards, goals, resources and a systems approach to decision making. Theory and application to increase consumer satisfaction.

351. Consumers and Ecology. Cr. 3

The consumer ecosystem and environmental quality: concern for consumer priorities, social discipline, and natural and technological resources.

355. The Consumer and the Market. Cr. 3

No credit after FAC 555. Economics of consumption as related to consumer purchases of goods and services. The consumer viewpoint regarding advertising, market practices, food, transportation, consumer protection, legislation and fraud.

356. Introduction to Consumer Housing. Cr. 3

Interplay of forces that shape housing: socio-cultural, environmental, technological, economic. Evaluation of housing alternatives.

455. Consumers and Their Money. Cr. 3

Prereq: FAC 355, ECO 101, ECO 102 for Consumer Affairs majors; others: consent of instructor. No credit after FAC 655. Economic principles and problems related to money and credit management. Insurance, saving and investing, personal taxes, retirement and estate planning.

456. Consumer Purchasing. Cr. 3

Prereq: FAC 355 for consumer affairs majors. Basic understanding of materials, construction, use and care, labeling, warranties of household equipment and furnishings. Guidelines for the consumer's rational selection of durable goods; individual values, economic and human resources and lifestyle.

551. Communication Techniques for Family and Consumer Resources. Cr. 3

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. Background research and subsequent article on current issue required for graduate credit.

555. Trends in Consumer Affairs. Cr. 3

Prereq: ECO 101. No graduate credit after FAC 355. Research project required for graduate students. Consumer economic problems regarding regulation, responsibility, advocacy and protective legislation, consumer behavior, advertising and marketplace decisions.

556. Determinants of Housing. Cr. 3

No credit after FAC 356. Interplay of forces that shape housing: history, need, social and cultural attitudes and values, economics, technology and aesthetics; environmental context; individual research for graduate students.

655. Consumer Finance. Cr. 3

Prereq: ECO 102. No credit after FAC 455. Economic principles and problems in relationship to personal and family income and expenditures. Research survey and analysis of a current money issue required for graduate students.

656. Urban Family Housing. Cr. 3

Prereq: FAC 355, 356 or 556, or consent of instructor. Effects of different urban housing situations on family behavior patterns; urban communities: federal housing legislation and local implementation.

751. Experimental Equipment and Kitchen Planning. Cr. 3

Prereq: FAC 456 or consent of instructor. Research problems in the evaluation of design and efficiency of home appliances and work centers.

757. Consumer Law and Public Policy. Cr. 3

Prereq: FAC 355 or 555, 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.

758. Practicum in Consumer Resources. Cr. 2-4

Prereq: written consent of instructor. Independent problems, research or professional work in the consumer, foods, or equipment areas.

759. Consumerism and Consumer Behavior Theories. Cr. 3

Prereq: FAC 555, 655 or equiv.; and two courses in sociology and/or psychology or consent of instructor. Economic, sociological and psychological theories as they affect consumers and the consumer movement.

Apparel Design and Fashion Merchandising

241. Textiles I. Cr. 3

Introduction to fibers, yarns, fabric construction, design and finishes and how they relate to selection, use and care of textile products.

242. Clothing Selection and Construction. Cr. 4

Application of color and design principles in construction of structured and unstructured garments.

340. Clothing and Culture. Cr. 3

Functions and meanings of dress in diverse cultures and contemporary society with an interdisciplinary approach.

341. Textiles II. Cr. 3

Prereq: FAC 241. Recent technological developments; introduction to textile testing.

346. Introduction to Merchandising. Cr. 4

Psychological, economic considerations. Terminology and structure of apparel trades and career opportunities. Field trips.

347. Merchandise Information. Cr. 4

Quality and value in merchandising. Manufacturing processes, government regulations and selling points in hard and soft lines.

443. Fashion Illustration. Cr. 2

Prereq: ART 105. Basic fashion rendering techniques using a variety of media.

540. New Development and Trends in Textiles. Cr. 3

Prereq: FAC 241 or consent of instructor. No credit after FAC 341. Relevant developments in fibers, fabrics, and finishes and their practical application and performance.

541. Practicum in Textile Testing. Cr. 3

Prereq: FAC 341, and one chemistry course or consent of instructor. Advanced physical testing techniques.

542. Fashion Design: Tailoring. Cr. 3

Prereq: FAC 242. Tailoring techniques applied to coats and suits.

543. History of Costume. Cr. 3

Prereq: one art history course or consent of instructor. Material fee as indicated in *Schedule of Classes*. Survey of historic costumes from prehistoric to present.

544. Fashion Design: Flat Pattern. Cr. 3

Prereq: FAC 242. Original designs from a basic sloper.

545. Fashion Design: Draping. Cr. 3

Prereq: FAC 242. Creation of an original garment by draping on a form.

546. Merchandising II. Cr. 3

Prereq: FAC 346 or consent of instructor. Current trends in merchandising. Lectures by specialists.

547. Visual Merchandising: Display. Cr. 3

Prereq: ART 105 or ART 120. Material fee as indicated in *Schedule of Classes*. Visual merchandising concepts and trends. Relationship of design elements and principles to the tools and structures used in display. Creative experimentation in the various media.

549. Economics of Merchandising. Cr. 2

Prereq: eight credits in marketing. Application of business theory to merchandising; design and implementation of the merchandise plan.

642. Advanced Problems in Apparel Design and Construction. Cr. 3

Prereq: FAC 542, 544 and 545. Individual problems in advanced design and construction.

643. History of Textiles. Cr. 3

Prereq: FAC 241 or consent of instructor. Study of major historical, decorative textiles and their construction techniques.

740. Socio-Psychological Aspects of Clothing. Cr. 3

Prereq: FAC 340, two courses in sociology and/or psychology or consent of instructor. Sociological and psychological aspects of clothing. Readings in social and psychological literature applicable to clothing. Written and oral presentation of readings and research.

General FAC Courses

100. The Human Ecosystem and the Near Environment. Cr. 1

Required of majors during freshman year or first year of transfer students. An introduction to the interaction of man with the environment and factors which affect the quality of life (resource depletion, population growth, family life styles and personal development - food, clothing, and shelter). The relationship of program areas of Family and Consumer Resources to the environment.

490. Directed Study. Cr. 2-4

Prereq: written consent of instructor.

491. Workshop. Cr. 2-4(Max. 8)

Application of theoretical principles to selected area of family and consumer resources. Topics and prerequisites to be announced in *Schedule of Classes*.

500. Contemporary Issues in Family and Consumer Resources. Cr. 1-4(Max. 8)

No topic may be repeated. Topics to be announced in *Schedule of Classes*.

592. Supervised Field Experience. Cr. 2-4

Prereq: written consent of instructor. Supervised field experience designed to correlate classroom theory with practical work.

606. Research Problems in Family and Consumer Resources. Cr. 3-4

Prereq: consent of instructor. Four credits required for Human Development majors. Research orientation: acquaintance with published data, principles of design, methods of collecting data, and basic statistical analysis.

685. Seminar. Cr. 2-4(Max. 6)

Prereq: consent of instructor; Human Development majors: consent of instructor and adviser; senior standing. Offered for each area of specialization. Topics to be announced in *Schedule of Classes*.

693. Study Tour. Cr. 2(Max. 4)

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*.

785. Seminar. Cr. 2-3(Max. 8)

Prereq: consent of instructor. Offered for each area of specialization. Topics to be announced in *Schedule of Classes*.

789. Advanced Workshop. Cr. 2-4(Max. 8)

Application of theoretical principles to selected areas of family and consumer resources. Topics and prerequisites to be announced in *Schedule of Classes*.

790. Directed Study. Cr. 2-4(Max. 8)

Prereq: written consent of adviser, instructor and graduate officer. Offered for each area of specialization.

796. Research. Cr. 3-6(Max. 6)

Prereq: consent of adviser.

799. Master's Essay Direction. Cr. 1-3 (Min. 3)

Prereq: consent of adviser.

899. Master's Thesis Research and Direction. Cr. 2-8(8 req.)

Prereq: consent of adviser.

GEOGRAPHY

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Professors

Fred E. Dohrs, Robert J. Goodman, Robert Sinclair

Associate Professors

Robert D. Swartz, Bryan Thompson

DEGREE PROGRAMS

Bachelor of Arts—with a major in geography

Master of Arts—with a major in geography

Geography is concerned with analyses 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 prepare students for many occupations in which geographic understanding is essential, including industrial and retail locational analysis, community and regional development, resource conservation and management, cartography, urban and environmental planning, and numerous government positions; (2) to train students for advanced geographic research, and (3) to provide students with a basis for understanding local, regional and global scale problems and issues. Students are invited to consult with geography faculty members concerning the content of the discipline, as well as employment opportunities available for geographers. A voluntary internship program permits a limited number of credits for on-the-job learning.

Bachelor of Arts

Major Requirements: A major in geography requires completion of thirty-two credits in the department. The sequence of courses, unless an exception is granted by the department, should include: Geography 300, 301, 302, 340, 390, and a minimum of three additional courses having higher numerical designations (no more than two of these three may be regional geography courses). In addition, geography majors must complete at least one of the following statistics courses: GEG 510, SOC 625, 626, ECO 520, or U P 632.

Recommended Cognate Courses: The varied opportunities for specialization within geography warrant careful selection of cognate courses. Geography majors emphasize cognate courses in one or two 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 (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 490.

Minor in Geography: Geography, the study of earth patterns and interaction of human activities over space, complements expertise and understanding in many other disciplines selected as majors. It specifically addresses the spatial processes and variations over space as they impact economic, social, political, historical, criminal,

commercial and other phenomena. The courses listed below for a minor in geography are basic to all aspects of spatial analyses. It is strongly recommended that the student minoring in geography consult with faculty concerning the most appropriate selection of courses to complement his or her interests. Requirements for a minor in geography are:

- a) Twenty credits in geography of which fifteen credits are exclusive of courses at the 100 level;
- b) at least one of the following courses—Geography 300, 301 or 302;
- c) Geography 340; and
- d) two additional courses at the 500-level or higher, only one of which can be a regional geography course.

Master of Arts

Plan A: Twenty-four credits, plus a thesis.

Plan B: Twenty-nine credits, plus an essay.

This program provides students with a broad foundation in geography enabling them to qualify for professional employment or pursue doctoral work. The curriculum is flexible and every attempt is made to tailor individual courses to the goals of the student. Informal sessions are held to acquaint students with various opportunities to specialize in geography, particular disciplinary strengths of the department, job opportunities, and program suggestions, as well as related matters.

Admission: Requirements are the same as those for entry into the Graduate School of the University: 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 twelve credits in geography, map study, and cartography. An undergraduate major in geography is not mandatory. A student may complete prerequisites while earning graduate credit.

Candidacy must be established by the time twelve credits have been earned. Three of these credits must include GEG 780. An official 'Plan of Work' must be filed at that time.

Degree Requirements: All master's programs must include GEG 780 and 650 (7 credits) or equivalent. Two oral examinations are required: a preliminary examination and a final examination upon completion of the thesis or essay.

Fellowships and Assistantships

The department offers a limited number of assistantships to highly-qualified students. Details and applications may be obtained from the Chairperson of the departmental Graduate Study Committee.

Internships

Students having at least twelve credits in geography may participate in the Department's internship program; approximately fifteen to eighteen hours per week of work, four credits. Students in the program must register for GEG 660. The program is open to graduate and undergraduate students. For details, contact the department chairperson.

COURSES OF INSTRUCTION¹ (GEG)

110. World Regional Patterns. Cr. 4-5

Cultural factors, physical conditions (climate, landforms, vegetation); regions compared and contrasted, area relationships, input/output of regions, concentrations/dispersals of human activity, national and regional differences in world affairs.

120. Earth Physical Systems. Cr. 4-5

The physical landscape as an ecologic assemblage: elements include landforms and surface processes, plate tectonics, soils, vegetation, and climate in lecture and laboratory.

150. Field Geography of Michigan. Cr. 2-6

Physical, social, economic, and historical characteristics of Michigan examined through field work in varying locations in the state and guest lectures on special topics.

200. (U S 200) Introduction to Urban Studies. (SOC 250) (ECO 280) (HIS 200) (P S 200). 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*.

279. Land and People. Cr. 3

Selected countries and regions; population and the land; the environmental complex; cultural, economic and political geography; current critical problems and challenges; future prospects. Areas to be announced in *Schedule of Classes*.

300. Map Intelligence. Cr. 4

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.

301. Thematic Cartography. Cr. 4

Introduction to mapping skills in a series of exercises plus development of map compilation skills and techniques for portraying spatial data.

302. Spatial Organization: Concepts and Techniques. Cr. 3

Introduction to spatial organization concepts, survey research procedures and statistical techniques. Topics include: geographic problems, research design, models, data source, sampling, questionnaire design and descriptive statistics.

310. Economic Geography. Cr. 4

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.

313. Introductory Urban Geography. Cr. 4

An introduction to the geographer's view of cities, with emphasis on the North American city. Topics include the pre-industrial city, migration, evolution of the American urban pattern, city classification, city-regional relationships, and the city's internal structure (ethnic, residential, commercial, and industrial).

340. The Physical Landscape. Cr. 4

Physical processes such as running water, glaciers, wave and wind action, plus the resultant erosional and/or depositional landforms.

390. Directed Study. Cr. 1-3(Max. 9)

Prereq: consent of adviser. Readings and research.

¹ See page 633 for interpretation of numbering system, signs and abbreviations

400. The World Today. Cr. 3

Critical areas of the current world scene; geographical factors underlying internal and external problems and conflicts.

490. Directed Study: Honors Program. Cr. 2-12(Max. 16)

Prereq: consent of chairperson.

510. (SOC 525) Social Statistics. Cr. 3

Basic techniques for organizing and describing social data, measures of central tendency and dispersion, probability theory and hypothesis testing, tests of significance and confidence intervals, measures of association for two variables.

520. Western Europe. Cr. 4

Analysis of non-communist European countries. Emphasis on population changes, resource problems, industrial location, urbanization, regional development, and emerging economic and political unities.

525. Eastern Europe. Cr. 4

Poland, Czechoslovakia, Hungary, Rumania, Bulgaria, Yugoslavia, Albania: economic development, nationalism, minorities; problems with the USSR and relations with the West.

530. Soviet Union. Cr. 4

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.

550. Africa. Cr. 4

Major African regions; problems of resource development; economic growth and political fragmentation; issues in the South African confrontation.

560. The United States. Cr. 4

Analysis of regional differences of the coterminous states with special emphasis on physiography. Instruction based on slides taken in the field and accompanied by a series of specially prepared maps. Overview of cultural differences.

565. Regions of Detroit. Cr. 4

Delineation, identification, and analysis of cultural regions in Detroit. Topics include: the regional concept; problems of delimitation; territoriality; historical development; social, economic, and ethnic regions; social change; and future development.

589. Regional Studies. Cr. 2-3(Max. 9)

Advanced study of selected regions. Topics to be advanced in *Schedule of Classes*.

593. (P S 593) Public Use Data and Information Systems. Cr. 4

Prereq: introductory social science course. Data and information systems useful in social science; emphasis on federal sources, including decennial and special censuses. Applications in specific disciplines. Familiarity with standard routines for computer retrieval/analysis, geocoding, and indicator construction.

613. Advanced Urban Geography. (U P 601). Cr. 4

Selected themes in urban geography. Topics include: current theoretical developments, city systems in advanced societies, the evolution of urban patterns, recent regional shifts in American urbanization, the metropolis as a social unit.

615. Internal Structure of the City. (U P 542). Cr. 4

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.

616. Comparative Urban Systems. Cr. 3

Urban development in selected world culture regions.

617. Physical Bases of Urban Ecology. (U P 562). Cr. 3

Morphology, geology, climatology, pollution, hydrology, soil and vegetation of urbanized areas; use in planning.

620. Advanced Economic Geography. Cr. 4

Concepts, theories, methods, and new developments in economic geography, locational analysis of selected economic activities, interrelationships between urban and economic systems, spatial aspects of regional development.

622. Conservation of Natural Resources. Cr. 4

Resource use and conservation practices in the United States.

623. Land and Leisure: Studies in Recreational Geography. (R P 661). Cr. 3

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.

624. Industrial Geography. (U P 552). Cr. 4

The location of industry in theory and practice, analysis of selected manufacturing industries and selected industrial regions. The role of industrial location in urban and regional development.

628. Marketing Geography. (U P 562). Cr. 4

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 of urban land use.

631. Political Geography and Geopolitics. Cr. 4

Global geopolitical patterns and theories; environmental factors and resources issues; location and conflicts between states.

632. Historical Geography of the United States. Cr. 4

Analysis of the physical and economic factors underlying the settlement and development of the United States prior to 1850. Continental exploration, spread of population, and subsequent regional development of resources examined through the use of maps especially prepared to explain the sequence of eras from the fur trade to the coming of the railroad.

635. Geography of Ethnic Groups in the United States. Cr. 4

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.

641. Climatology. Cr. 4

Systematic and regional study of the atmosphere: description, genetic explanation, and physical processes underlying distributional patterns of climate.

650. Field Geography. (U S 603). Cr. 3-7

Prereq: two courses in geography or consent of instructor. Geographic field training, including mapping, interviewing, field observation, data gathering, problem analysis, and report preparation. Work undertaken in a variety of situations, including urban and rural land use, industrial and commercial locations, urban social change, agriculture, soils and landforms. Normally held in summer.

651. Land Utilization Problems. Cr. 2-4

Selected problems in the classification and utilization of land.

652. Independent Field Study. (U S 605). Cr. 2-4

Prereq: consent of instructor; for Urban Studies students: U S 401 and consent of instructor. Observation and interpretation of data in the

field. Class preparations prior to travel. Written reports.

660. Internship in Applied Geography. Cr. 4

Prereq: fifteen credits in geography. Offered for S and U grades only. On-the-job training, mostly in applied aspects of geography (retail location analysis, land use studies); some internships compensated. Internships are usually for one academic semester.

663. Advanced Cartography. Cr. 3

Prereq: GEG 301 or equiv. Analysis and preparation of varying types of three-dimensional surfaces. Perspective drawing.

664. Techniques in Visualization. Cr. 3

Prereq: consent of instructor. Compilation and photography of maps, charts, and statistical data to produce animated cartography, film strips, and overhead transparencies.

665. Computer Assisted Mapping. Cr. 4

Science of computer assisted mapping and hands-on computer assisted map production; geo-management issues.

671. Perception of the Geographic Environment. Cr. 3

Human perception and use of geographic space in a cross-cultural context: mental maps, personal space and design, territoriality, neighborhood, city space, regional and hazard perception, landscapes in Europe and North America.

680. Systematic Studies. Cr. 2-3(Max. 9)

Advanced study of selected systematic topics: spatial diffusion, world religions, remote sensing. Topics to be announced in *Schedule of Classes*.

700. Geographic Research and Bibliography. Cr. 2

Approaches to professional work in geography, library, census, and field methods. Presentation and evaluation of research materials.

780. Seminar in Geography. Cr. 3

Philosophy and methodology of geography. New developments and recurrent problems in geographic thought.

781. Seminar in Urban Geography. Cr. 2

Prereq: consent of instructor. Urban research methods; theoretical developments in urban geography.

785. Seminar in Systematic Geography. Cr. 2

Prereq: consent of instructor.

786. Seminar in Regional Geography. Cr. 2

Prereq: consent of instructor.

790. Directed Study. Cr. 2-3(Max. 8)

Prereq: written consent of adviser and graduate officer. Readings and research.

799. Master's Essay Direction. Cr. 3

Prereq: consent of instructor.

899. Master's Thesis Research and Direction. Cr. 2-8(8 req.)

Prereq: consent of adviser.

GEOLOGY

Office: 201 Old Main

Chairperson: Robert B. Furlong

Professors

Egbert G. Driscoll, Jr., Robert B. Furlong, Hugo Mandelbaum (Emeritus), Andrew J. Mozola, Willard H. Parsons (Emeritus), Luciano B. Ronca

Associate Professors

Donald MacLachlan (Emeritus), Richard F. Ward

Assistant Professors

Stuart J. Birnbaum, Alan P. Morris

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 consists 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 general knowledge of geology as 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 general, 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.

Bachelor of Arts

Major Requirements: This program is recommended as a background for secondary school earth science teacher training. Students must complete twenty-six credits beyond Geology 102. Fourteen of the twenty-six must be from advanced courses: 300-level and above.

At least one college course in each of two of the following fields is required: biology, chemistry or physics. Mathematics 180 and the Foreign Language Group requirement are prescribed. This program does not satisfy the requirements for entrance to the Master of Science degree program.

Bachelor of Science

Major requirements: This is a professional major program and the proper preparation for graduate work in geology. Students must complete at least thirty-four credits exclusive of the introductory courses, twenty of which should be from advanced courses (300-level and above) and must include at least six credits in field mapping and field techniques. This requirement may be fulfilled by completing six credits in Geology 365 or an approved field course offered by another university.

The program must include a year of calculus, a year of chemistry (or the equivalent of Chemistry 108) and a year of physics. The courses in chemistry should include Chemistry 105 for the student without high school chemistry, followed by Chemistry 108. For the student with some knowledge of chemistry, the Chemistry 107 and 108 sequence is satisfactory. It is recommended that the courses in physics include Physics 217 and 218 (both of these courses require introductory calculus). For those students who will not be able to complete introductory calculus prior to taking physics, Physics 213 and 214 will be acceptable. A maximum of four credits in directed study or directed research courses may be applied toward the geology major. A foreign language is recommended, but not required. As the various 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 chairperson concerning his/her program at the earliest possible date.

Master of Science

Plan A: Twenty-four credits in course work, plus a thesis.

The graduate program offers a broad foundation in geology for those students who intend to pursue doctoral work or seek professional employment as geologists. Special emphasis is placed on the petroleum geology, geophysics, sedimentation, structural geology, paleontology, igneous or metamorphic petrology, ground water geology, geochemistry and field work.

Department research programs involving areas in Michigan, Montana, Wyoming, Idaho, Svalbard (Norway), Mexico, Spain 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. Students transferring from other fields should make an appointment with the Graduate Office or the Department chairperson in order to review the students background and make recommendations regarding the graduate program. The verbal, quantitative and advanced parts of the Graduate Record Examination are required for admission to the graduate program. The applicant must file three personal letters or be interviewed by the Chairperson of the Committee on Graduate Study.

Prerequisite Study should include mineralogy, paleontology, petrology, sedimentation, geomorphology, and structural geology, two semesters of calculus, a year of chemistry and a year of physics. 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 recommended but not required.

Candidacy must be established by the time twelve 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 part of the thesis requirement. Two regular 700 level geology courses must be taken, excluding GEL 790, 791, 792, 793, 794, and 796.

A final oral examination on the thesis is required.

A geology graduate student may not earn more than six graduate credits in directed study courses 790, 791, 792, 793, 794; or more than six graduate credits in research courses, GEL 796.

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 graduate officer and should be received by the end of March.

COURSES OF INSTRUCTION¹ (GEL)

100. Geology and the Environment. Cr. 4

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.

101. Geology: The Science of the Earth. (PHS 193). Cr. 4

Material fee as indicated in *Schedule of Classes*. 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.

102. Interpreting the Earth. Cr. 4

Prereq: GEL 101 or PHS 193 with a grade of C or better. Sedimentary rocks, sedimentary structures and fossils as tools for interpreting the history of the earth. Paleocology of the geologic past and the structure of the earth are emphasized.

104. Interpreting the Earth: Laboratory. (Lab: 3). Cr. 1

Prereq: GEL 101 or PHS 193 with a grade of C or better; prereq. or coreq: GEL 102. Material fee as indicated in *Schedule of Classes*. Exercises involving principles discussed in GEL 102.

105. Oceanography. Cr. 4

Introductory course in oceanography; includes origin of the ocean basins; ocean currents, waves and tides; life in the oceans and marine ecology; food, mineral and energy resources of the sea.

110. Gems and Gem Materials. Cr. 3

No credit after GEL 213; 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.

197. 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*.

200. Geology of Michigan. Cr. 4

Prereq: GEL 101 or PHS 193. No credit toward major in Geology. Physical, historical and economic geology of Michigan.

207. 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.

¹ See page 633 for interpretation of numbering system, signs and abbreviations

213. Mineralogy. Cr. 4

Prereq: one course in high school or college chemistry. Material fee as indicated in *Schedule of Classes*. External morphology and internal arrangement of minerals. Identification of minerals by sight and simple physical and chemical properties. Properties and occurrences of major mineral groups.

228. Glacial Geology. Cr. 4

Prereq: GEL 101 and 102. Material fee as indicated in *Schedule of Classes*. Mechanics of glacier movement and landscape features resulting from glacial erosion and deposition. Emphasis on the glacial geology of the Great Lakes region. Interpretation of glacial features from topographic maps and aerial photographs.

237. Meteorology. Cr. 3

Atmospheric conditions, weather maps, forecasting. Instruments and records.

316. Petrology. Cr. 4

Prereq: GEL 102 and 213. Material fee as indicated in *Schedule of Classes*. Origin, occurrence, alterations, classification, methods for determination of important rocks based on megascopic and microscopic characteristics.

330. Structural Geology. Cr. 4

Prereq: GEL 102 and high school trigonometry or equiv. Material fee as indicated in *Schedule of Classes*. Description and interpretation of features which result from the origin or deformation of rock masses.

340. Principles of Sedimentology and Stratigraphy. Cr. 4

Prereq: GEL 102, 213 or consent of instructor. Material fee as indicated in *Schedule of Classes*. Processes which produce sediments, environments of deposition, changes after deposition. Relationship between tectonics and sedimentation. Origin of sedimentary strata. Facies and correlations.

345. Invertebrate Paleontology. Cr. 4

Prereq: GEL 102 or consent of instructor. Material fee as indicated in *Schedule of Classes*. Paleontology of invertebrates; evolutionary relationships between taxa and geological applications.

346. Paleocology and Biostratigraphy. Cr. 4

Prereq: GEL 345 or consent of instructor. Material fee as indicated in *Schedule of Classes*. Theory and techniques for the interpretation of paleoenvironments, interpretation of fossil communities. Stratigraphy, geologic history and paleocommunities of North America.

365. Field Geology. Cr. 1-10(Max. 16)

Prereq: consent of instructor. Field studies involving problems in individual geologic mapping and related techniques.

390. Directed Study. Cr. 2-6(Max. 10)

Prereq: consent of instructor, adviser, and chairperson. Primarily for honors students.

410. Fundamentals of Geophysics. Cr. 4

Prereq: at least one course in calculus and one in physics. Application of calculus to geological problems. Introduction to the geophysics of gravity, magnetism, seismology and heat transfer. Theory of radiometric dating. Methods and problems of exploration geophysics. Fundamentals of well logging.

420. Geomorphology. Cr. 4

Prereq: GEL 102. Material fee as indicated in *Schedule of Classes*. Principles underlying development of landforms by geologic agents.

496. Research. Cr. 3-4(Max. 8)

Prereq: consent of instructor, adviser, and chairperson. Primarily for honors students. Independent laboratory and field work.

497. Seminar. Cr. 2-4(Max. 8)

Prereq: consent of instructor.

501. 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.

502. 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.

506. Earth Science for Teachers: Minerals and Rocks. Cr. 4

Prereq: one course in chemistry or physics. No credit after GEL 213. 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.

512. Principles and Methods of Geochemistry. Cr. 4

Prereq: GEL 316, 340 and two semesters of college chemistry or consent of instructor. Material fee as indicated in *Schedule of Classes*. Introduction to the chemistry of the earth and to the analytical techniques used by geochemists. Chemistry of common earth materials, reactions within these materials.

513. Geology of Industrial Minerals and Rocks. Cr. 4

Prereq: GEL 316 and 340. Material fee as indicated in *Schedule of Classes*. Origin, occurrence and the utilization of the industrial rocks and minerals. Local field trip.

514. Geology of Metallic Resources: Economic Geology. Cr. 4

Material fee as indicated in *Schedule of Classes*. Distribution, occurrence, origin, use of metallic mineral resources. Identification of metallic ore minerals.

530. Statistical and Computer Methods in Geology. Cr. 4

Prereq: consent of instructor. Material fee as indicated in *Schedule of Classes*. Principles of statistics, probability and computer programming; application to the geological sciences; sampling procedures, population, confidence limits, regressions, correlations and time series, practical applications to geological problems.

535. Geophysics. Cr. 4

Prereq: consent of instructor. Gravitational field and isostasy; magnetic field and paleomagnetism; seismology; internal structure of the earth; absolute age determination; exploration geophysics.

550. Geological Development of the World: North America. Cr. 4

Prereq: GEL 330, 340 or consent of instructor. Tectonic setting, stratigraphy and sedimentological history of the world and especially North America from a regional viewpoint. General geological history of the continents.

555. Geology of Fossil Fuels. Cr. 4

Prereq: GEL 330, 340; 410 recommended or consent of instructor. Material fee as indicated in *Schedule of Classes*. The occurrence, origin, exploration and exploitation of petroleum, natural gas, coal, oil shale and tar sands. Interpretation of geophysical logs, well cuttings and reservoir potential.

571. (BIO 571) Paleontology of Vertebrates. Cr. 4

Prereq: GEL 102 or BIO 271 or consent of instructor. Material fee as indicated in *Schedule of Classes*. Morphology, phylogeny, evolution, paleocology and paleogeographic distribution of vertebrate animals. Stratigraphic correlations based on vertebrate assemblages on a global

scale.

600. Optical Mineralogy. Cr. 4

Prereq: GEL 316 or consent of instructor. Material fee as indicated in *Schedule of Classes*. Behavior of crystals in polarized light. Use of polarizing or petrographic microscope and its accessories. Determination of rock-forming minerals.

610. Volcanology. Cr. 4

Prereq: GEL 316. Material fee as indicated in *Schedule of Classes*. Volcanic products and processes. Distribution and origin of active volcanic belts.

620. Groundwater Geology. Cr. 4

Prereq: GEL 420 and 340. Material fee as indicated in *Schedule of Classes*. Occurrence of groundwater in crystalline, sedimentary and unconsolidated terrains, qualitative and quantitative evaluations of aquifers.

700. Igneous and Metamorphic Petrology. Cr. 4

Prereq: GEL 316. Material fee as indicated in *Schedule of Classes*. Geochemistry, classification, occurrence and origin of igneous and metamorphic rocks. Mineralogy, textures and structures of igneous and metamorphic rocks in hand specimen and thin section.

710. Sedimentary Petrology. Cr. 4

Prereq: GEL 340 and 600 or consent of instructor. Material fee as indicated in *Schedule of Classes*. Composition, classification, origin of sedimentary rocks. Structures, textures, mineral composition of rocks in thin section using the polarizing microscope.

720. Tectonics. Cr. 4

Prereq: GEL 316, 330, 340. Material fee as indicated in *Schedule of Classes*. Advanced structural geology; relation of structure and sedimentation; major structural features of the world; origin of mountain belts; tectonic history of the earth.

760. Colloquium in Geology. Cr. 1(Max. 3)

Prereq: graduate standing in geology. Offered for S and U grades only. Weekly program by visiting lecturers, graduate staff, and graduate students.

762. 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*.

765. Methods of Field Research. Cr. 1-10(Max. 10)

Prereq: consent of instructor and adviser. Field methods in surface and subsurface geology. Usually conducted in field.

790. Directed Study in Geology. Cr. 2-8(Max. 8)

Prereq: written consent of instructor, adviser and graduate officer.

791. Directed Study in Paleontology. Cr. 2-6

Prereq: written consent of instructor, adviser and graduate officer.

792. Directed Study in Petrology. (0,2-12). Cr. 2-6

Prereq: written consent of instructor, adviser and graduate officer.

793. Directed Study in Pleistocene Geology. Cr. 2-6

Prereq: written consent of instructor, adviser and graduate officer.

794. Directed Study in Geochemistry. Cr. 2-6

Prereq: written consent of instructor, adviser and graduate officer.

796. Research in Stratigraphy and Sedimentation. Cr. 3-4

Prereq: consent of instructor and adviser. Independent work in laboratory or field.

797. Research in Geology. Cr. 3-4(Max. 8)

Prereq: consent of instructor and adviser. Independent work in

laboratory or field.

899. Master's Thesis Research and Direction. Cr. 2-8(8 req.)

Prereq: consent of adviser.



GREEK AND LATIN LANGUAGES AND LITERATURES

Office: 431 Manoogian Hall

Chairperson: Ernest J. Ament

Professor

Richard W. Minadeo

Associate Professors

Ernest J. Ament, Joel B. Itzkowitz, Kenneth R. Walters

Assistant Professors

Kathleen McNamee, Amy R. Rose, Ladislav Szymanski

Foreign Language Group Requirement

The student may satisfy the Foreign Language Group Requirement (see page 223) by passing the first three courses of either Ancient or Modern Greek or Latin, or by a special placement examination through which one might place out of the requirement. Students continuing the study of any of the above languages begun in high school or in another college MUST take a placement examination. For details, contact the Department: 577-3032.

Humanities Group Requirement

Most courses in the Department satisfy the Humanities Group Requirement, in particular:

Courses in Ancient and Modern Greek and Latin that concentrate on literature (generally courses numbered 260 and above).

All Classics courses, with the exceptions of CLA 120 and 124. All of these courses are taught in English translation with no knowledge of Greek or Latin required.

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 or 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 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 firsthand 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 Epidaurus Festival and the Athens Festival. For further information, consult with the department advisers.

Intercollegiate Center for Classical Studies in Rome

The University is a member of the Intercollegiate Center for Classical studies in Rome, a consortium of American colleges and universities set up to provide undergraduate students with an opportunity to study Greek and Latin literature, ancient history and archaeology, and ancient art in Rome. Students—preferably in their third year—are eligible to apply to study at the Center for a period of one or two semesters. The Department will help students who are accepted at the Center seek financial assistance if necessary and credit gained from study there will be accepted by the University. For further information, consult with the department chairperson or undergraduate adviser.

Bachelor of Arts

A student who wishes to major or minor in the Department should plan his/her 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 231.

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 520 Classical World: Minoan to Alexander
Art History 521 Hellenistic and Roman Art

History 533.....	Greece
History 534.....	Rome
Philosophy 370.....	Philosophy of Art

Recommended for Greek and Classic majors

Philosophy 541.....	Plato
Philosophy 542.....	Aristotle

Major Requirements in Classics: A major in Classics consists of twenty to twenty-four credits of concentration in either Greek or Latin, exclusive of Greek or Latin 101 and 102, plus sixteen credits of concentration in the other language. Recommended cognates: CLA 220 and 240, as well as those listed above.

Major Requirements in Greek: A major in Greek consists of thirty-two credits exclusive of Greek 101 and 102 and including any two Classics courses 300 level or above. Potential majors are also encouraged to elect Classics 101 (Classical Civilization) and 200 (Greek Mythology) during their freshman or sophomore year. For recommended cognates, see above.

Major Requirements in Latin: A Major in Latin consists of thirty-two credits exclusive of Latin 101 and 102 and including any two Classics courses, 300 level or above.

Potential majors are also encouraged to elect Classics 101 (Classical Civilization) and 200 (Greek Mythology) during their freshman or sophomore year. For recommended cognates, see above.

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 the ancient languages to students with graduate aspirations in the humanities or professions, such as law and medicine. The breadth of this major also allows completion of a second major simultaneously, or heavier concentration in specific areas included in this program.

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 (12 credits maximum).
2. Four Classics courses, 220 level or above. (12 credits)
3. Art History 520 (Classical World: Minos to Alexander) and 521 (Hellenistic and Roman Art). (6 credits)
4. History 533 (History of Greece) and 534 (History of Rome). (6 credits)
5. Philosophy 210 (Ancient and Medieval Philosophy) or Classics 300 (The Greek Philosophers). (3 credits)

Electives: 10-18 credits, with courses required from at least two departments, to be chosen from the following:

Up to eight credits in Greek or Latin beyond 260	
Anthropology 531.....	Language and Culture
Art History 530.....	Early Christian and Byzantine Art
Classics 310.....	Roman Law

Classics 319.....	Men and Women in Classical Antiquity
Classics 325.....	Urban Study of Ancient Rome
Classics 519.....	Greek and Roman Life
English 215.....	Introduction to Literary Criticism
History 535.....	The Hellenistic Period
History 536.....	The Early Middle Ages: 300-1000
History 537.....	The High Middle Ages: 1000-1300
History 559.....	Byzantine History I
History 560.....	Byzantine History II
Humanities 533.....	Western Culture in the Classical Period
Philosophy 370.....	Philosophy of Art
Philosophy 541.....	Plato
Philosophy 542.....	Aristotle
Philosophy 543.....	Medieval Philosophy

Total Credit Requirements for the Major: 37-45 credits, exclusive of the Foreign Language Requirement, with 27 credits required in the core area and 10-18 credits in electives.

Honors Program Requirements: Qualified majors may apply for participation in the departmental Honors Program. Only the student who has demonstrated superior ability in the field of 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 101 (Classical civilization) and 200 (Greek Mythology).

Once the Honors candidate has been admitted to the program (normally at the end of the sophomore year) he/she shall fulfill the normal requirements for the elected major. In the senior year students should elect a minimum of eight credits in Classics 490, which will prepare and guide them in the writing of a Senior Honors Essay. One of the 400-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').

Minor Requirements in Classical Civilization: A minor in classical civilization consists of twenty-three to twenty-six credits distributed as follows:

1. Greek or Latin 101 and 102 (eight credits).
2. Two Classics courses, 220 level or above (six to eight credits).
3. Art History 520 (Classical World: Minos to Alexander) or 521 (Hellenistic and Roman Art) (three credits).
4. History 533 (History of Greece or 534 (History of Rome) (three credits).
5. Philosophy 210 (Ancient and Medieval Philosophy) or Classics 300 (The Greek Philosophers) (three to four credits).

Minor Requirements in Classics: A minor in classics consists of twelve to sixteen credits of concentration in either Greek or Latin, exclusive of Greek or Latin 101 and 102, plus twelve credits of concentration in the other language. Recommended cognates: CLA 220 and 240, as well as those listed above.

Minor Requirements in Greek: A minor in Greek consists of twenty credits exclusive of Greek 101 and 102 and including one Classics course 220 level or above. Potential minors are also encouraged to elect Classics 101 (Classical Civilization) and 200 (Greek Mythology) during their freshman or sophomore year. For recommended

cognates, see above.

Minor Requirements in Latin: A minor in Latin consists of twenty credits exclusive of Latin 101 and 102 and including one Classics course, 220 level or above. Potential minors are also encouraged to elect Classics 101 (Classical Civilization) and 200 (Greek Mythology) during their freshman or sophomore year. For recommended cognates, see above.

Master of Arts in Classics

Plan A: Twenty-four credits in course work, plus an eight credit thesis.

Plan B: Twenty-nine credits in course work, plus a three credit essay.

Plan C: Thirty-two 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 twelve credits have been earned.

Degree Requirements: A minimum of sixteen credits are required in the one language and a minimum of twelve credits in the other. A maximum of four 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 700 level, exclusive of thesis or essay credits under Plans A and B. A final examination is required.

Master of Arts in Latin

Plan A: Twenty-four credits in course work, plus an eight credit thesis.

Plan B: Twenty-nine credits in course work, plus a three credit essay.

Plan C: Thirty-two 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 twelve credits have been earned.

Degree Requirements: Under Plans A or B course work must include at least twenty credits in Latin exclusive of Latin 799 or 899, and including eight credits in courses numbered 700 or higher. A final examination is required.

Under *Plan C* course work must include at least twenty credits in Latin, including at least eight credits in courses numbered 700 or higher. 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 Graduate School, 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)

NOTE: all of the Classics courses listed below are taught in English translation, with no knowledge of Greek or Latin required, and may be elected for the Humanities Group Requirement, with the exception of CLA 120 and 124.

101. Classical Civilization. Cr. 3-4

Survey of the culture and civilization of Ancient Greece and Rome, in particular those aspects that laid the political, social, and cultural framework of the modern world.

120. Preparation for Foreign Language Study. Cr. 4

A survey of the grammatical concepts and terminology necessary for the effective study of a foreign language. For students who anticipate or are having difficulties with foreign language study. Not for foreign language credit.

123. Etymology: English Words from Greek and Latin. Cr. 3-4

Formation and structure of English words derived from Greek and Latin roots, including, legal, medical and general scientific vocabulary.

124. Etymology: Medical Terms from Greek and Latin. Cr. 3

Principles for recognizing and analyzing the basic components of medical terms derived from Greek and Latin. For students interested in medicine, dentistry, nursing, and allied scientific fields. No knowledge of a foreign language required.

200. Greek Mythology. Cr. 3-4

Typical myths related to religion, custom, ethics, philosophy, art, literature.

220. Introduction to Greek Tragedy. Cr. 3-4

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.

240. Heroic Poetry: Homer and Vergil. Cr. 4

The hero, heroism, and other themes reflected in the epics of Homer and Virgil. Other ancient authors may be read for comparison.

300. The Greek Philosophers. Cr. 3-4

Origin and development of Greek philosophical thought from the pre-Socratics through the age of Aristotle. Selected authors and works.

310. Roman Law. Cr. 3-4

Historical development from the Twelve Tables (fifth century B.C.) to the *Digest* of Justinian (sixth century A.D.); appraisal of the Classical Law (first century A.D. to third century A.D.), including status, slavery, property, contracts, and testamentary law; special attention to procedures. No special legal knowledge required.

319. Men and 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.

325. 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

¹ See page 633 for interpretation of numbering system, signs and abbreviations

archaeological evidence.

399. Further Studies in Mythology. (CLA 626). Cr. 3(Max.6)
Prereq: CLA 200 or GER 170 or equivalent introductory mythology course in any other department or consent of instructor. A more in-depth study of mythology with special reference to particular classical myths or theories.

490. Senior Honors Tutorial. Cr. 3-16(Max.16)
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.

519. Greek and Roman Life. Cr. 3
Unit studies reconstructing the development and physical, social and moral milieu of Greco-Roman society at various periods.

520. Special Studies. Cr. 1-4(Max. 8)
Prereq: minimum of one previous classics course, 200 level or above. In-depth study of some aspect of Greek and Roman civilization. Topics may be drawn from the fields of literature, archaeology, art and history, and will be announced in *Schedule of Classes*. All readings in English.

590. Directed Study. Cr. 1-4 (Max. 8)
Prereq: undergrad., at least two classics courses and written consent of chairperson; grad., written consent of chairperson and graduate officer. Directed independent research in-depth on a topic or author treated in the regular classics offerings, culminating in a course paper.

626. (CLA 399) Further Studies in Mythology. Cr. 3(Max. 6)
Prereq: CLA 200 or GER 170 or equivalent introductory mythology course in any other department, or consent of instructor. An in-depth study of mythology with special reference to particular classical myths or theories of myth.

Greek (GRK)

Ancient Greek

101. Elementary Greek. Cr. 4
Basic vocabulary, forms, grammar.

102. Elementary Greek. Cr. 4
Prereq: GRK 101. Continuation of GRK 101 with increasing emphasis on reading ability.

201. Classical Greek Prose. Cr. 4
Prereq: GRK 102. Selections from various classical Greek prose authors such as Plato and Lysias.

260. Homer. Cr. 4
Prereq: GRK 201 or equiv. or consent of instructor. Reading of selected passages from the *Iliad* and the *Odyssey*; study of the fundamentals of Homeric Greek.

301. New Testament. Cr. 2-4
Prereq: GRK 201 or equiv. or consent of instructor. Typical examples of textual and interpretive variants; emphasis on reading ability.

320. Herodotus. Cr. 4
Prereq: GRK 260 or equiv. or consent of instructor. Representative selections from Herodotus chosen to illustrate the author's style and approach to writing history.

360. Greek Tragedy. Cr. 4
Prereq: GRK 260 or equiv. or consent of instructor. Study of a tragedy or tragedies of Euripides, supplemented by selections from Sophocles and Aeschylus.

500. Intensive Greek for Graduate Students. Cr. 1-3
Prereq: graduate standing. Introduction to basic vocabulary, forms and grammar of classical Greek leading to the reading of continuous Greek prose passages.

510. Greek Prose Composition. Cr. 2
Prereq: GRK 260 or equiv. or consent of instructor. Practice in the essentials of writing idiomatic and stylistic Greek prose. Supplementary readings in Greek for imitation.

520. Greek Lyric Poetry. Cr. 4
Prereq: GRK 260 or equiv. or consent of instructor. Study of personal lyric poetry as a reflection of the individual and society in post-Homeric Greece.

530. Attic Orators. Cr. 4
Prereq: GRK 260 or equiv. or consent of instructor. Development of Greek prose style and rhetoric in selected works of the Attic orators.

540. Greek Philosophy. Cr. 4
Prereq: GRK 260 or equiv. or consent of instructor. The origin and development of Greek philosophy as seen through representative selections from the Presocratics, Plato, Aristotle, Epicurus, and the Stoics.

550. Thucydides. Cr. 4
Prereq: GRK 260 or equiv. or consent of instructor. Books Six and Seven - the Sicilian expedition - with special attention to Thucydides' prose style and historiographic method.

590. Directed Study. Cr. 1-4(Max. 8)
Prereq: undergrad., written consent of chairperson; grad., consent of chairperson and graduate officer.

620. Special Studies. Cr. 2-4(Max. 8)
Prereq: GRK 360 or equiv. or consent of instructor. In-depth approach to special aspects of Greek studies, such as papyrology, paleography, or metrics. Topics to be announced in *Schedule of Classes*.

625. Greek Comedy. Cr. 4
Prereq: GRK 360 or equiv. or consent of instructor. Representative comedies from Old, Middle or New Greek Comedy to show the origin, development and social implications of the genre.

645. Greek Literature of the Hellenistic Period. Cr. 4
Prereq: GRK 360 or equiv. or consent of instructor. An introduction to such writers as Apollonius of Rhodes, Callimachus and Theocritus.

781. Studies in Greek Poetry. Cr. 4(Max. 12)
Prereq: 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*.

782. Studies in Greek Prose. Cr. 4(Max. 12)
Prereq: undergrad. major in Classics or Greek or consent of instructor. A major prose author or prose genre. Topics to be announced in *Schedule of Classes*.

796. Research Problems. Cr. 1-4(Max. 8)
Prereq: undergrad. major in Classics or Greek; consent of adviser.

799. Master's Essay Direction. Cr. 3
Prereq: consent of adviser.

freshman year. They are also advised to pass Mathematics 150 or 180 prior to the junior year unless they demonstrate eligibility for Mathematics 201 in the mathematics qualifying examination.

Students who contemplate graduate work in economics should undertake the Mathematics 201 sequence as early as is feasible.

Bachelor of Arts

Major Requirements and Electives: A major consists of thirty-two credits in economics. These must include: Economics 101 and 102 (Principles of Macroeconomics and Microeconomics); Economics 500 and 505 (Intermediate Microeconomics and Macroeconomics); and Economics 410 and 510 (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 course in three of the following fields: industrial organization, international economics, labor and human resources economics, public finance, economic history and development, money and banking, and urban and regional economics.

A maximum of four credits in accounting may be counted as credit in economics.

The student should consult his/her major adviser to determine the economics electives that are best suited to his/her 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.

Minor Requirements and Electives: A minor consists of twenty-one credits in Economics. These must include ECO 101, 102, and two of the following three courses: ECO 410 (Statistics), 500 (Intermediate Microeconomics), and 505 (Intermediate Macroeconomics). Other courses are elective.

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 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 ten credits in accounting may be elected for credit toward a liberal arts degree as cognate to a major in economics. (These cognate credits may not be used to fulfill the thirty-two credits in economics required for the economics major.)

Combined Curriculum for Academic Studies: Economics majors wishing to enter secondary teaching should see page 231 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 undergraduate adviser for admission to the economics honors program not later than the first semester of the junior year. Economics 498, the Senior Honors Seminar (four credits per semester for two semesters), must be taken during the senior year (or during the student's last full academic year prior to graduation). 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: Applicants are expected to have completed the following courses as undergraduate or post-bachelor students:

ECO 500.....Intermediate Microeconomics
ECO 505.....Intermediate Macroeconomics
ECO 410.....Economic and Business Statistics I
ECO 510.....Economic and Business Statistics II
MAT 151 or 201 or other introductory courses in differential and integral calculus.

Students may earn graduate credit for only one of these 500-level prerequisite courses. One of the prerequisites may be completed following regular admission.

Candidacy: To be eligible for candidacy, the student must file a *Plan of Work*, approved by the Master's 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.) Students enrolled in Master's degree programs are expected to file a *Plan of Work* by the time eight to twelve graduate credits have been earned.

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 when filing a *Plan of Work*.

Plan A (Thesis): Thirty-two graduate credits are required, including a total of eight credits earned by writing a thesis. Economics 600, 605, and 610 or the equivalent must be elected. At least two courses, exclusive of Economics 796 and 899, must be completed at the 700 or 800 level.

Plan B (Essay): Thirty-two graduate credits are required, including a total of three credits earned by writing an essay. Economics 600, 605, and 610 or the equivalent must be elected. At least two courses, exclusive of Economics 796 and 799, must be completed at the 700 or 800 level.

Plan C (No thesis or essay): Thirty-two graduate credits are required, including economics 600, 605, and 610 or the equivalent, and at least eight credits at the 700 level or above in Economics, exclusive of Economics 796.

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 School, 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 be reviewed and acted upon by 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. Part-time students are rarely permitted in the Ph. D. program. Candidacy is granted upon fulfillment of the following requirements:

1. Completion of a *Plan of Work*, which must be approved by the Chairperson of the Graduate Committee in Economics and filed with the Graduate School.
2. Special proficiency in economic theory and in two of the following eight fields: quantitative methods; industrial organization; international economics; labor and human resources economics; public finance; economic history and development; money and banking; and urban and regional economics. Proficiency must be demonstrated by successful completion of the written and oral qualifying examinations for Ph.D. candidacy in economic theory and the two other selected fields.
3. Demonstration of basic competence in quantitative methods (Economics 710 and 711). Doctoral students are expected to have taken the equivalent of Mathematics 201 and 501.
4. Demonstration of basic competence in the history of economic thought. Doctoral students are required to take Economics 704.
5. Completion of a Doctoral Dissertation Outline and Record of Approval. This form must be approved by the student's dissertation advisory committee and the Chairperson of the Graduate Committee in Economics.

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/her Faculty Dissertation Committee and designed to test his/her proficiency in economic analysis, capacity for independent and creative research, and ability to perfect and 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 School 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 700 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 700-799 range.

Introductory Economics

100. Survey of Economics. Cr. 4

Not for major credit. Scope of economics and the task of the economist in modern society; the market economy - its evolution and development; non-market economies; economic problems and prospects in the contemporary world.

101. Principles of Macroeconomics. (Lct: 2; Dsc: 2; or Lct: 4). Cr. 4

Problems of unemployment and inflation; money, banking, the price level; public policies to promote stability and growth.

102. Principles of Microeconomics. (Lct: 3; Dsc: 1; or Lct: 4). Cr. 4

Supply, demand, price at the 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.

300. Current Economic Issues. Cr. 3(Max. 6)

Prereq: ECO 101 and 102 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

301. Socialist Economic Thought. Cr. 3

Prereq: ECO 101 and 102. Development of both Marxist and non-Marxist socialist economic thought.

500. Intermediate Microeconomics. Cr. 4

Prereq: ECO 102, MAT 150 or MAT 180 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.

502. Introduction to Mathematical Economics. Cr. 4

Prereq: ECO 500 and MAT 201. 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.

505. Intermediate Macroeconomics. Cr. 3

Prereq: ECO 101, MAT 150 or MAT 180 or equiv. based on satisfactory score on mathematics placement examination. Theory of national income determination. National output and income, saving and capital formation.

600. Price and Allocation Theory. Cr. 4

Prereq: ECO 500 or equiv. No credit after ECO 700. 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.

¹ See page 633 for interpretation of numbering system, signs and abbreviations

- 271. Comparative Vertebrate Zoology. (Lab: 6; Lct: 3). Cr. 5**
Prereq: BIO 102. 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. (F,W,S)
- 307. Genetics. (Lab: 3; Lct: 3). Cr. 4**
Prereq: BIO 102 or 220. Material fee as indicated in *Schedule of Classes*. Inheritance in plants and animals; experimental and statistical evidence from which genetic mechanisms are deduced. Laboratory experiments to demonstrate genetic principles. (F,W,S)
- 312. General Ecology. (Lab: 3; Lct: 3). Cr. 4**
Prereq: BIO 102. Material fee as indicated in *Schedule of Classes*. Analysis of the factors affecting the distribution and abundance of plants and animals. (F)
- 340. Principles of Physiology. (Lct: 3). Cr. 3**
Prereq: BIO 102; CHM 107 and CHM 108 strongly recommended. Introduction to physiology at the molecular and cellular levels: bioenergetics, metabolism and regulation, membrane permeability and excitability, motility and contractile elements, photosynthesis. (F,W)
- 341. Principles of Physiology: Laboratory. (Lab: 3; Lct: 1; Dsc: 1). Cr. 3**
Prereq. or coreq: BIO 340. Material fee as indicated in *Schedule of Classes*. Laboratory exercises demonstrate physiological phenomena at the molecular, cellular and organ levels: nerve and muscle function, osmotic and ionic regulation, respiration and photosynthesis.
- 385. Human Heredity. (BIO 585). Cr. 3**
Not for biology major credit. No credit after BIO 307. Development, anatomy and physiology of human sexual dimorphism; basis of Mendelian genetics as applied to man; inborn errors of metabolism, genetic engineering and understanding human population dynamics.
- 386. Introduction to Animal Experimentation. (Lct: 3). Cr. 3**
Prereq: BIO 102. Not for biology major credit. The care, housing, nutrition, disease problems, anesthesia, legislature and research guidelines of commonly used species of laboratory animals.
- 390. Directed Study. Cr. 1-4(Max. 4)**
Prereq: written consent of instructor must be arranged during semester preceding election of course. Primarily for biology majors who wish to continue in a field beyond that covered in regular courses. (F,W,S)
- 500. Radiation Biology. (Lct: 3). Cr. 3**
Prereq: 18 credits in biology. Effects of radiation on living organisms; basic theoretical concepts, techniques and applications of radiation (isotopes, x-ray).
- 501. Methods in Radiation Biology. (Lab: 12). Cr. 4**
Prereq. or coreq: BIO 500, 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.
- 503. History of Biology. (Lct: 2). Cr. 2**
Prereq: 16 credits in biology. Development of science and philosophy of biology from earliest written records to the present.
- 504. Biometry. (Lab: 2; Lct: 3). Cr. 4**
Prereq: MAT 201, MAT 221 or equiv. 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.
- 505. Microtechnique. (Lct: 2; Lab: 6). Cr. 4**
Prereq: 14 credits in biology, general chemistry and consent of instructor. Material fee as indicated in *Schedule of Classes*. Preparation of tissues for microscopic study, including paraffin technique, frozen sections, smears and selected histochemical methods.
- 509. Evolution. (Lct: 3). Cr. 3**
Prereq: BIO 307. Evidence for organic evolution; the nature and consequences of the process.
- 510. Limnology. (Lct: 4). Cr. 4**
Prereq: BIO 102; one course in chemistry or physics. Physical, chemical and biological properties of freshwater environments.
- 511. Biogeography. (Lct: 3). Cr. 3**
Prereq: BIO 102. Introductory study of principles and patterns of plant and animal distribution.
- 513. Biological Fine Structure. (Lct: 3). Cr. 3**
Prereq: 18 credits in biology. Advanced studies relating to how cellular components as revealed by electron microscopy can be correlated with recent biological information obtained using membrane models, cyto-chemical and histochemical techniques, immunocytochemistry, gel electrophoresis, column chromatography and various biochemical techniques.
- 518. Field Investigations in Biological Sciences. (Fld: 6). Cr. 2-12 (Max. 12)**
Prereq: 12 credits in biology, consent of instructor. Field studies of one to fifteen weeks, emphasizing biological principles and techniques demonstrated in the field.
- 520. Limnology Laboratory. (Lab: 6). Cr. 2**
Prereq. or coreq: BIO 510 and consent of instructor. Material fee as indicated in *Schedule of Classes*. Laboratory and field methods in physical, chemical and biological limnology. Field introduction to diversity of freshwater habitats.
- 523. Environmental Microbiology. (Lct: 3; or Lct: 3; Lab: 6). Cr. 3 or 5**
Prereq: BIO 220 and CHM 226. 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.
- 525. Food Microbiology. (Lab: 4; Lct: 3). Cr. 4**
Prereq: BIO 220. Material fee as indicated in *Schedule of Classes*. Characterization of the total microbial flora; microbes in foods and their significance in food spoilage. Theories and practice of food preservation.
- 526. Pathogenic Bacteriology. (Lct: 3). Cr. 3**
Prereq: BIO 220 and CHM 226. 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.
- 527. Pathogenic Bacteriology Laboratory. (Lab: 6). Cr. 2**
Prereq. or coreq: BIO 526. Material fee as indicated in *Schedule of Classes*. Laboratory experience in culturing and identifying the common bacterial pathogens of humans.
- 531. Immunology. (Lct: 3). Cr. 3**
Prereq: BIO 220 and CHM 226. Antibody formation, antigen structure, antigen-antibody reactions.
- 532. Serology. (Lab: 4; Lct: 1). Cr. 3**
Prereq: BIO 220; prereq. or coreq: 531. Material fee as indicated in *Schedule of Classes*. Practice in various experimental methods used for stimulation of antibody production; *in vitro* titration of antibodies.
- 543. Introduction to the Fungi. (Lct: 3). Cr. 3**
Prereq: BIO 102 and 307. Fundamentals of morphology, taxonomy, physiology, and genetics of fungi; mushroom identification; the use of

molds by man.

545. Phycology. (Lab: 3; Lct: 3). Cr. 4

Prereq: BIO 102; one course in chemistry. Material fee as indicated in *Schedule of Classes*. Systematics, physiology, and ecology of the algae.

546. Plant Physiology. (Lct: 3). Cr. 3

Prereq: BIO 102; two courses in general chemistry or equivalent. Physiology in relation to form in the intact plant; emphasis on growth and development, nutrition, water economy, plant-soil interactions, and translocation.

547. Plant Physiology Laboratory. (Lab: 6; Lct: 1). Cr. 3

Prereq. or coreq: BIO 546. Material fee as indicated in *Schedule of Classes*. Laboratory experiments on basic physiological functions of higher plants at organ, cellular, subcellular and enzyme levels; hormones and growth, transpiration, water conduction, photosynthesis, respiration.

550. Developmental Biology of Plants. (Lct: 2; or Lct: 2; Lab: 6). Cr. 2 or 4

Prereq: BIO 102. Material fee as indicated in *Schedule of Classes*. Gametogenesis and development of plants. Control of development by hormones and environment. Tissue culture of cells and experimental plant embryology.

555. Systematic Botany. (Lab: 3; Lct: 2). Cr. 3

Prereq: BIO 102. Material fee as indicated in *Schedule of Classes*. Principles and methods of taxonomy and identification of native vascular plants.

556. Aquatic Plants. (Lab: 3; Lct: 3). Cr. 4

Prereq: BIO 102. The habitat, physiology and morphology of aquatic plants both in lecture and in laboratory-field sessions, with emphasis on vascular hydrophytes.

559. Physiology of Aging. (Lct: 2). Cr. 2

Prereq: BIO 340. The aging process with emphasis on humans followed by a discussion of cellular aging and theories regarding the process of aging.

560. Invertebrate Zoology. (Lab: 4; Lct: 3). Cr. 4

Prereq: BIO 102. Material fee as indicated in *Schedule of Classes*. Comparative and functional morphology, embryology; physiology and evolution of invertebrate animals.

561. Vertebrate Embryology. (Lab: 4; Lct: 3). Cr. 4

Prereq: BIO 271. 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 gametogenesis and development of sea urchin, frog, chick and pig. (F,W)

562. Developmental Biology. (Lct: 3). Cr. 3

Prereq: BIO 307. An analytical study of the mechanisms which govern the flow of information into and out of the nucleus thereby setting in motion various developmental processes common to many eukaryotic systems. Analysis of the causes of the events depicted in descriptive embryology.

563. Histology. (Lab: 4; Lct: 3). Cr. 4

Prereq: BIO 271. Material fee as indicated in *Schedule of Classes*. Characteristics and identification of normal mammalian tissues. Micro-anatomy of the mammal. Functional interpretation of microstructure and fine structure. (F)

565. Biology of Aquatic Invertebrates. (Lab: 6; Lct: 2). Cr. 4

Prereq: BIO 560 or 574 or consent of instructor. Material fee as indicated in *Schedule of Classes*. Functional morphology, systematics,

life histories and ecology of freshwater habitats; the animal's adaptations to those habitats.

567. Endocrinology. (Lct: 4). Cr. 4

Prereq: BIO 340. 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.

568. Methods in Endocrinology. (Lab: 12). Cr. 4

Prereq. or coreq: BIO 567 and consent of instructor. 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.

569. Animal Behavior. (Lct: 3). Cr. 3

Prereq: 16 credits in biology. Function, biological significance, causation, and evolution of species-typical behaviors which are part of the animal's behavioral repertoire under natural conditions.

570. Natural History of Vertebrates. (Lab: 3; Lct: 2). Cr. 3

Prereq: 16 credits in biology. 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.

571. Paleontology of Vertebrates. (GEL 571). (Lab: 3; Lct: 3). Cr. 4

Prereq: BIO 271 or GEL 102 or consent of instructor. Material fee as indicated in *Schedule of Classes*. Morphology, phylogeny, evolution, paleoecology and paleogeographic distribution of vertebrates. Stratigraphic correlations based on vertebrate assemblages on a global scale.

572. Ornithology. (Lab: 3; Lct: 2). Cr. 3

Prereq: BIO 570. Material fee as indicated in *Schedule of Classes*. Morphology, systematics, ecology, evolution, physiology and behavior of birds.

573. Mammalogy. (Lab: 3; Lct: 2). Cr. 3

Prereq: BIO 570. Material fee as indicated in *Schedule of Classes*. Systematics, geographical distribution, ecology, adaptive radiation, patterns of growth and reproduction, physiology. Field trips.

574. Insect Biology. (Lab: 6; Lct: 2). Cr. 4

Prereq: BIO 102. Material fee as indicated in *Schedule of Classes*. The systematics, classification, and functional morphology of insects; methods of collection and study of insect specimens. Field trips.

577. Parasitic Protozoa. (Lab: 3; Lct: 2). Cr. 3

Prereq: BIO 578. 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.

578. Biology of Parasitism. (Lab: 6; Lct: 3). Cr. 5

Prereq: BIO 102. Material fee as indicated in *Schedule of Classes*. Parasitism throughout the animal phyla. Morphology, life history, methods of transmission and control of parasites.

579. Animal Behavior Laboratory. (Lab: 9). Cr. 3

Prereq. or coreq: BIO 569; consent of instructor. Material fee as indicated in *Schedule of Classes*.

581. Embryology. (Lct: 3). Cr. 3

Prereq: BIO 187 or 271, or equiv. Open only to nursing students. Gametogenesis and fertilization; descriptive and experimental embryology of echinoderms and amphibians; reproductive physiology and development of birds and mammals including humans. (F,W)

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.

Cognitive Processes: Basic and applied work in the area of cognitive functioning include human learning and memory, psychology of language, and information processing. An interdisciplinary approach is stressed with research faculty drawn from developmental psychology, neuropsychology, learning disabilities programs in the College of Education, linguistics, and anthropology. To insure appreciation of applied implications, all students are expected to spend at least one semester in a field practicum setting chosen to be relevant to the student's interests.

Developmental Psychology emphasizes a life-span approach and 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 exist with the Gerontology Institute and various other agencies.

Industrial/Organizational Psychology: This program offers concentration in organizational theory and functioning, personnel selection, motivation, union-management relations, and managerial development. Opportunities exist for part-time activity in major industrial firms.

Social Psychology: This program offers concentration in attitude theory and change, decision-making, environmental psychology, small group behavior, political psychology, applied social psychology, social equity and social learning. Opportunities exist for field experience in various agencies and organizations in the community.

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 sixty 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 and various industrial settings) 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)

101. Introductory Psychology. Cr. 4

Three hours outside research participation required. Principles and theories of human thought and action.

102. Elements of Psychology. Cr. 3

Open only to students in pre-professional curricula in business, nursing, allied health and engineering technology. Principles, theories and applications of psychological knowledge. Three hours research participation required.

130. Psychology of Adjustment, Cr. 4

Prereq: PSY 101 or 102. Processes involved in the interaction of individuals with their personal and social environments. Psychological methods for dealing with everyday problems, coping with anxiety, and achieving personal growth.

201. Points of View in Modern Psychology. Cr. 3

Prereq: PSY 101 or 102. Major systems of psychology, including the influence of scientific thought from other disciplines and countries on models in psychology.

205. Psychology of Perception: The Interpretation of Experience. Cr. 4

Prereq: PSY 101 or 102. Material fee as indicated in *Schedule of Classes*. Man's knowledge of the world around him; basic sensory processes; organization and differentiations of percepts. Laboratory investigations of basic perceptual phenomena.

207. Psychology of Learning and Memory: Fundamental Processes. Cr. 4

Prereq: PSY 101 or 102. No credit after PSY 308. Material fee as indicated in *Schedule of Classes*. Theoretical and experimental literature, including sensory and motor learning; complex learning in humans. Laboratory investigations of basic learning phenomena.

209. Cognitive Processes: Language, Thinking and Problem Solving. Cr. 4

Prereq: PSY 101 or 102. Material fee as indicated in *Schedule of Classes*. Fundamental theories, concepts, and empirical findings in the study of human cognition. Topics include thinking, problem solving, language comprehension and production, the acquisition and use of knowledge, memory, attention and consciousness. Laboratory investigations of cognitive processes.

240. Developmental Psychology. Cr. 4

Prereq: PSY 101 or 102. Facts, principles, theories of psychological development. Development of intellectual, emotional, perceptual, linguistic, and social behavior. Developmental trends.

260. Psychology of Social Behavior. Cr. 4

Prereq: PSY 101 or 102. 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.

261. Laboratory in Personality and Social Psychology. Cr. 3

Coreq: PSY 260. Field and laboratory studies investigating the impact of environments, groups and personality styles on social interaction.

308. Readings in the Psychology of Learning and Memory. Cr. 3

Prereq: PSY 101 or 102. No credit after PSY 207. Theoretical and experimental literature on learning and complex learning in humans.

320. Motivation, Feeling and Emotion. Cr. 3

Prereq: PSY 101 or 102. Experimental findings in psychological and

¹ See page 633 for interpretation of numbering system, signs and abbreviations

Minor Requirements: A minor in psychology is offered for students majoring in other fields. The minor consists of a minimum of five courses totaling eighteen credits distributed as follows: Introductory Psychology (PSY 101); one basic Psychology laboratory course (PSY 205, 207, or 209); one additional core Psychology course (PSY 240, 260, 402, 405, 410, 505, or a second laboratory course from the previous group); and two courses selected in consultation with the Student's major adviser. Psychology courses that may not be included in the minimum eighteen credits are: PSY 490, 493, or 496.

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 at least two laboratory courses in psychology, plus Psychology 402, 410, 240, 260 and 405 or 505. Additional courses in mathematics, biology, and sociology are strongly recommended.

Psychology-related jobs have increased in recent years. Such employment, of course, has depended on the personal characteristics of the individual, on the special qualifications and training of the individual, and particularly on job opportunity. The purpose of the following information is to highlight specific courses as desirable background for particular kinds of job orientation. Students interested in such careers should contact the Psychology Department undergraduate secretary for referral to an appropriate faculty adviser. The groups of courses indicated below suggest what education is likely to supply some of the background needed for effective performance on certain psychology-related jobs.

1. *Industrial personnel psychology worker:* Such individuals require knowledge, background and skills in construction, administration and scoring of psychological tests. They may assist in establishing job requirements, developing interview procedures and rating scales, organizing training programs, and programs to reduce accidents, absenteeism and turnover. Suggested courses include: Psychology 410 (statistical methods), 350 (industrial-organizational psychology), 411 (psychological tests), 554 (motivation in world of work), 653 (organizational psychology), 490, 496 (special projects under direction of a faculty member). Work in computer science is also recommended.

2. *Developmental specialist in psychology:* Such individuals need knowledge and skills in working with normal and sometimes handicapped (mentally retarded, physically handicapped) persons at various ages in the life span—nursery school and preschool children, school age children, adolescents and the aged. Suggested courses include: Psychology 240 (developmental), 343 (infant behavior), 344 (child behavior), 346 (adolescent behavior), 549 (the aging individual in society), 643 (psychological problems in development in childhood), 649 (developmental psychology of death, dying), 490, 493, 496 (special projects under direction of a faculty member).

3. *Mental health worker in psychology (or mental health assistant):* Such individuals need knowledge, background and skills in interviewing, routine administration of tests, and various kinds of direct contact with persons. Suggested courses include: Psychology 335 (personality), 240 (developmental), 411 (psychological tests), 331 (abnormal), 437 (behavior modification), 528 (psychoanalytic theory), 535 (personality assessment), 493 (field study).

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 intend to complete the doctoral degree will be considered for admission to the graduate program. Applicants must have better than a 3.0 average in course work, including psychology courses. A minimum of fourteen semester credits in psychology is required, with courses in experimental (laboratory) psychology and statistical methods in psychology. Courses in college mathematics and 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 School. 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 of the above have 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 600 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 715 and two of the following: Psychology 701, 708, 709, 712, 725, 740 and 762.

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 substantive courses will be required of all doctoral candidates: PSY 701 and 709, plus two of the following—708, 712, 725, 740, 762. To supplement these and to emphasize the quantitative approach in psychology, two advanced courses in psychological statistics and measurement, 715 and 716, 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 six credits).

Biopsychology: An extensive animal-psychological laboratory, an auditory research laboratory, and other relevant facilities are available. The biopsychology program is affiliated with the University's interdisciplinary program in the neurosciences.

Clinical Psychology: Students in this specialty area take courses in clinical research, psychopathology, diagnostic methods, and therapeutic interventions. Requirements also include supervised

different to avoid compromising the breadth of the total two-part exam.

Oral Qualifying Examinations : By University regulations, after passing the written Qualifying Examinations, a student must take an oral Qualifying Examination within thirty days after certification of passing the written exam. The oral examination committee consists of the written examination committee, a representative of the Graduate Committee, and per University regulations, a representative of the Graduate Dean. The oral examination will normally cover material similar to that of the written examinations, but may also include material outside the written examination areas which is deemed relevant to the student's research work.

Language Examinations: Students are expected to show proficiency, at the level of translating mathematical literature, in two modern languages other than English. Examiners and exam format will be determined on an individual basis by the Graduate Committee. One language exam must be in French, German, or Russian, and this examination must be passed before completion of the written examinations. The second language may be any language in which there is a substantial body of modern mathematical literature. The second language exam must be passed before the Defense of Dissertation is scheduled.

Course Requirements: In addition to the examinations described above, before advancement to candidacy every student in the Ph.D. program must complete each of the four courses with a grade of 'B' or better: MAT 740, 750, 760, and 660.

Defense of Dissertation: Candidates must pass a final oral examination covering their research after the candidate's adviser has approved the 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 Chairperson of the Department of Mathematics.

COURSES OF INSTRUCTION¹ (MAT)

Undergraduate Courses

095. Algebra. Cr. 3

Prereq: one unit of high school algebra. Offered for S and U grades only. No degree credit. Real number system, operations with algebraic expressions, exponents and radicals, linear equations, systems of two linear equations, solutions of quadratic equations by method of factoring; elementary geometry. For students who need a review of high school algebra and geometry.

125. Mathematical Concepts I. Cr. 3

Open to students in Liberal Arts Honors Program; others with consent of Director of Honors Program. Logic, number theory, algebra, geometry, probability, statistics, and other topics to be chosen by instructor.

180. Elementary Functions. Cr. 4

Prereq: satisfactory score in qualifying examination based on one and one-half years of high school algebra, one year of high school geometry. No credit after former MAT 0178 or 0179; only 2 credits

toward graduation after MAT 150. The properties and graphs of polynomials, rational functions, trigonometric functions, exponentials and logarithms; properties and graphical representation of complex numbers.

185. Mathematical Concepts II. Cr. 3

Logic, number theory, algebra, geometry, probability, statistics, and other topics to be chosen by instructor.

201. Calculus I. Cr. 4

Prereq: MAT 180 or satisfactory score on qualifying exam. No credit after MAT 151. Concept and interpretation of the derivative and integral; differentiation of rational and transcendental functions; the indefinite integral; area under a curve; the definite integral; partial derivatives.

202. Calculus II. Cr. 4

Prereq: MAT 201 or equiv. Vectors; differentiation of vector functions; techniques and applications of integration in one and several variables.

203. Calculus III. Cr. 4

Prereq: MAT 202 or equiv. Taylor series; vector analysis; single differential equations.

204. Calculus IV. Cr. 4

Prereq: MAT 203 or equiv. Linear algebra; systems of ordinary differential equations.

221. Elementary Probability and Statistics. Cr. 4

Prereq: MAT 201. No credit after MAT 570. Sample spaces, probability of events; random variables, mean, variance; joint probability distribution and density functions. Some special distributions; counting techniques; estimation, testing hypothesis; regression models; analysis of variance.

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 201, 202, 203, and 204 make up the four term sequence which provides this preparation.

419. Linear Algebra and Differential Equations: Honors Program. Cr. 5

Prereq: 3.0 h.p.a. in MAT 201 and 202. No credit after MAT 204. Students who plan to take this course should not take MAT 203 and MAT 204. Matrices and linear transformations; inner products; characteristic vectors; first order differential equations; systems of linear differential equations; infinite series; series solutions of differential equations.

420. Advanced Calculus: Honors Program. Cr. 5

Prereq: MAT 419. Taylor's theorem and maxima and minima for several variables; uniform convergence; improper integrals; Gamma function; implicit function theorem; line and surface integrals; Green's Theorem, Divergence Theorem, Stokes' Theorem.

490. Directed Study: Honors Program. Cr. 1-4

Prereq: admission to Honors Program by Mathematics Honors Committee.

507. Advanced Calculus. Cr. 4

Prereq: MAT 204. Derivatives of implicit functions; Lagrange multipliers; implicit function theorems; transformations and mappings; vector fields and the theorems of Green and Stokes; uniform convergence; advanced topics in power series; improper integrals and functions defined by improper integrals; Fourier series and integrals.

¹ See page 633 for interpretation of numbering system, signs and abbreviations

522. Partial Differential Equations and Boundary Value Problems. Cr. 4

Prereq: MAT 507. Boundary value problems of mathematical physics; Sturm-Liouville problems; eigenvalues and eigenfunctions; Green's functions; variational principles; the Rayleigh-Ritz method.

523. Complex Variables and Applications. Cr. 4

Prereq: MAT 507. Cauchy-Riemann equations; elementary functions; mappings by elementary functions; the Cauchy integral formula; Morera's theorem; Taylor series; Laurent series; residues and poles; conformal mappings; the Schwarz-Christoffel transformations; potential theory; Fourier and Laplace transforms and applications in differential and integral equations.

524. Approximation Theory. Cr. 3

Prereq: MAT 507. The problem of linear approximation; Tschebyscheff approximations; approximation by algebraic and trigonometric polynomials; approximations by rational functions; approximation of functions of several variables.

525. Introduction to Tensor Theory and Applications. Cr. 3

Prereq: MAT 507 and some knowledge of linear algebra. Tensor algebra; curvilinear coordinates in Euclidean space; covariant differentiation and Riemannian geometry; differential forms and Stokes' theorem; applications to mechanics, electromagnetism and theory of general relativity.

526. Introduction to Groups and their Representations. Cr. 3

Prereq: MAT 507. Introduction to groups and linear representations; application to physical sciences. Topics include symmetry groups, matrix groups, groups of rotations, invariant integrals, and Lie algebras.

528. Ordinary Differential Equations I. Cr. 3

Prereq: MAT 507 or consent of instructor. Linear nth order differential equations; linear systems of differential equations (constant and periodic coefficients); oscillation and comparison theorems for second order differential equations; boundary value problems; stability theory (Liapunov's direct method and frequency domain stability criteria); asymptotic solutions; autonomous non-linear systems; classification of singularities.

529. Partial Differential Equations I. Cr. 3

Prereq: MAT 507 or consent of instructor. Characteristic theory for first order equation, the Cauchy-Kovalevsky theorem; maximum, principles and mean value properties for elliptic equations; selected topics involving hyperbolic and parabolic equations.

530. Theory of Sets. Cr. 3

Prereq: MAT 560. Set operations; cardinal numbers; order types; ordinal numbers.

535. (PHI 535) Logical Systems I. Cr. 4

Prereq: PHI 185 or PHI 186 or MAT 560 or MAT 542 or consent of instructor. Metaresults concerning formal systems of sentential and first order logics; soundness, completeness; independence of axioms; introduction to recursive functions; formalization of elementary arithmetic; discussion of Godel's incompleteness theorem and Church's Theorem. This course counts toward the Liberal Arts Natural Science Group Requirement.

539. (PHI 539) Logical Systems II. Cr. 4

Prereq: PHI 535 or MAT 535 or consent of instructor. Detailed proofs of Godel's incompleteness results, Tarski's Theorem, and Church's Theorem; formal axiomatic treatment of set theory and selected applications. Course counts toward the Liberal Arts natural science group requirement.

540. Elementary Theory of Numbers. Cr. 3

Prereq: MAT 204 or consent of instructor. Unique factorization theorem; order of magnitude of arithmetic functions; congruences,

quadratic residues, law of reciprocity; continued fractions; elements of geometry of numbers; second pearl of number theory.

542. Algebra I. Cr. 4

Prereq: MAT 204. Linear algebra: vector spaces, linear transformations, polynomials, determinants, eigenvalues and eigenvectors, canonical forms. Introduction to group theory: groups, subgroups, cosets (Lagrange's theorem), homomorphisms and quotient groups, permutation groups.

543. Algebra II. Cr. 4

Prereq: MAT 542. Group theory continued: Sylow Theorems, finite Abelian groups. Ring Theory, rings, domains, fields, fields of quotients, homomorphisms and ideals, P.I.D.s and U.F.D.s, polynomial rings; Field extensions: splitting fields, finite fields.

552. Elementary Topology of Surfaces. Cr. 3

Prereq: MAT 204. No credit for this course is applicable toward a graduate degree in mathematics or statistics. 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.

553. Differential Geometry of Curves and Surfaces I. Cr. 3

Prereq: MAT 204. Classical differential geometry of curves and surfaces in R^3 (to the third power).

556. Elements of Geometry. Cr. 3

Prereq: MAT 204. Only two credits toward graduation after MAT 614. Brief review of analytic geometry of space using vector methods; projective geometry of one, two, and three dimensions; homogeneous coordinates.

560. Introduction to Analysis I. Cr. 4

Prereq: MAT 507 or consent of instructor. Completeness, convergence, compactness and continuity in the context of Euclidean spaces; applications to differential and integral calculus.

561. Introduction to Analysis II. Cr. 3

Prereq: MAT 560. Point-wise and uniform convergence of sequences and series of functions; power series; introduction to analytic functions; Fourier series; possible additional topics.

570. Probability and Stochastic Processes. Cr. 4

Prereq: MAT 204. No credit after MAT 221 or MAT 615; only two credits after MAT 502. Probability spaces, combinatorial analysis; independence; discrete and continuous random variables; expectations; normal, Poisson and binomial distribution; joint, marginal and conditional distribution functions; law of large numbers; central limit theorems; random walks; Markov chains; Poisson processes.

571. Stochastic Processes with Applications. Cr. 3

Prereq: MAT 570 or consent of instructor. Non-measure theoretic introduction to the theory of stochastic processes and its applications, with emphasis on Markov processes and stationary processes with both discrete and continuous parameters.

577. Mathematical Models in Operations Research. Cr. 3

Prereq: MAT 204 and 221 or 570 or consent of instructor. Mathematical models (deterministic and/or probabilistic) applied to dynamic programming; games; queues and inventories.

582. Statistics I. Cr. 3

Prereq: MAT 570 or consent of instructor. Survey of statistical methods. Topics include sampling distributions; point and interval estimations; Bayesian statistics; testing hypotheses; sequential methods; linear models, and others.

583. Applied Time Series. Cr. 3

Prereq: college courses in statistics and calculus, or consent of

of Philosophy group.

2. one course from the Theory of Value group.
3. one course from the Philosophical Problems group.
4. Symbolic Logic (PHI 185 or 186), and
5. three courses at the 500-level or above.

NOTE: Rather than taking a 200- or 300-level course in satisfying any of requirements (2) or (3), one may take a 500-level course from the same group instead; however, the student should consult the instructor before doing so. Courses taken at the 500-level which are used to satisfy any of requirements (1) through (4) may also be used to satisfy requirement (5), though the eight course minimum must still be met.

Honors Program for Majors: Admission will be determined on the basis of the student's overall record. The student will normally be required to have (a) a minimum honor point average of 3.3, (b) credit in at least three philosophy courses, and (c) a B or better average in philosophy courses.

A candidate for the honors degree must complete the course requirements for the regular major, plus PHI 487 and 489 (to be taken in the candidate's senior year), and an interdisciplinary seminar from the Honors Program.

To remain in the philosophy honors program, the student must maintain a B or better average in philosophy courses. To receive an Honors Degree, the candidate must (a) complete the course requirements, (b) pass comprehensive examinations in philosophy, (c) write an Honors Essay of sufficiently high quality on a topic to be chosen by the candidate in consultation with his/her instructor in PHI 487, and (d) complete an interdisciplinary seminar offered through the Honors Program. If at any point the student fails to maintain Honors standards, his or her credits will automatically be counted towards the regular major. Students interested in becoming candidates for the Honors Degree in philosophy should consult the Director of Undergraduate Studies in Philosophy as soon as possible.

Minor Requirements: A candidate for a minor in philosophy must complete a minimum of five courses (generally eighteen credits) selected from the Philosophy course listings on pages 357-360. Included among those courses must be:

1. *History of Philosophy group:* PHI 210 (or 541, or 542) or PHI 211 (or 544, or 545, or 546).
2. *Symbolic Logic group:* PHI 185 or 186.
3. *Value Theory group or Philosophical Problems group:* one course from either group.
4. One course at the 500 level or above from any group.
5. One additional course at the 200 level or above from any group.

Courses taken in compliance with requirement (4) may be used to satisfy any of requirements (1), (2), (3), or (5); however, students wishing to do so must consult with the instructor; the five course minimum must still be met.

Students who are planning to minor in philosophy should consult the Director of Undergraduate Studies in the Philosophy Department.

Master of Arts

Plan A: Twenty-four credits in course work, plus a thesis.

Plan B: (if approved by adviser) Thirty credits in course work, plus an essay.

Plan C: (Only for prospective doctoral candidates. Consult department chairperson.) Thirty-two credits in course work.

Admission requires approval by the chairperson of the department. Prerequisites must include courses in logic, value theory, and history of philosophy. The Graduate Record Examination is required if the honor point average is below 2.6 in a degree from an accredited institution, or below 3.0 from a non-accredited institution.

Candidacy must be established by the time twelve 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 fifth semester of full-time study (excluding summers, but including fellowship and assistantship semesters) toward the Ph.D. degree (i.e., normally in the spring semester of the student's second year of study); if failed the first time, it must be taken again the following year. 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 the 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 INSTRUCTION¹ (PHI)

Previous acquaintance with philosophy is not required for any 100-level or 200-level philosophy course, nor for many 300-level courses.

Introductory Courses

101. Introduction to Philosophy. Cr. 4

By way of a study of the ideas of some of the world's great philosophers, the student will become familiar with some of the differing perspectives concerning the nature of reality, our knowledge of reality, and the nature of value which have dominated our intellectual history and which continue to be debated in our times. Offered every term.

¹ See page 633 for interpretation of numbering system, signs and abbreviations

102. Honors Introduction to Philosophy. Cr. 4
Open only to students in the Liberal Arts Honors Program.

105. Practical Reasoning. Cr. 3
Recognition, analysis and evaluation of reasoning as it occurs in everyday contexts; informal (non-symbolic) logic; the recognition of fallacious reasoning. Offered every term.

110. Contemporary Moral Issues. Cr. 3(Max. 9)
Current moral problems confronting individuals and societies. Possible topics: war, love, death, civil disobedience, population and environmental issues, sexuality, feminism, racism, ageism, animal rights. Topics to be announced in *Schedule of Classes*.

111. Ethical Issues in Health Care. Cr. 3
Survey of moral issues that arise in the practice of medicine and in pursuit of medical knowledge: abortion, euthanasia, experimentation on human subjects, informed consent, rights to health care, genetic engineering, the concepts of death, health and disease.

185. Symbolic Logic. Cr. 4
The logic of propositions; the general logic of predicates and relations; identity and descriptions; a brief introduction to set theory. Course counts toward the Liberal Arts Natural Science Group Requirement. Offered every term.

186. Honors Symbolic Logic. Cr. 4
Open only to students in the Liberal Arts Honors Program. See PHI 185. Course counts toward the Liberal Arts Natural Science Group Requirement.

201. History of Ideas. Cr. 3
Prereq: sophomore standing. Ideas grow and change due to many historical factors. This course deals with several important ideas which have affected literature, philosophy, theology, jurisprudence and history as ways in which we think about and understand the world. Examination of assumptions and methods used to trace the careers of such ideas.

History of Philosophy

210. Ancient and Medieval Philosophy. Cr. 3
A survey of the most important philosophers of ancient Greece (e.g., the pre-Socratics, Plato, Aristotle, the Stoics, the Epicureans) and medieval Europe (e.g., Augustine, Anselm, Aquinas, Scotus, Ockham) and their views concerning the nature of reality, knowledge, and morality, and the existence and nature of God. Offered in alternate years.

211. Seventeenth and Eighteenth Century Philosophy. Cr. 3
A survey of the views concerning knowledge and reality of the major European philosophers of the seventeenth and eighteenth centuries. Descartes, Spinoza, Leibniz, Locke, Berkeley, Hume, Kant. Offered in alternate years.

212. Nineteenth Century Philosophy. Cr. 3
A survey of the views concerning knowledge, reality and value of the major European philosophers of the nineteenth century: for example, Fichte, Hegel, Marx, Schopenhauer, Kierkegaard, Nietzsche, Bentham, Mill, Bradley.

213. Twentieth Century Philosophy. Cr. 3
A survey of the major European and American philosophers and philosophical movements of the twentieth century: pragmatism (Peirce, James, Dewey), process philosophy (Whitehead), phenomenology (Husserl), existentialism (Heidegger, Sartre), positivism (Carnap, Ayer), philosophical analysis (Russell, Moore, Austin, Ryle, Wittgenstein).

225. American Philosophy. Cr. 3
A study of the writings of American philosophers from Jonathan Edwards and the philosophers of the American Revolution through Emerson to Royce, James, Santayana, Whitehead, and Dewey. A study of the major trends in American philosophy; transcendentalism, idealism, pragmatism and realism.

515. Existentialism and Phenomenology. Cr. 4
Prereq: PHI 211 or 212 or 213 or consent of instructor. Selected topics or readings related to the work of one or more of the major existentialist or phenomenological writers, such as Nietzsche, Husserl, Heidegger and Sartre.

541. Plato. Cr. 4
Prereq: PHI 210 or 211 or 257 or any philosophy course at the 300 level or above or classics major or consent of instructor. Selected readings on topics in Plato.

542. Aristotle. Cr. 4
Prereq: PHI 210 or 211 or 257 or any philosophy course at the 300 level or above or classics major or consent of instructor. Selected readings on topics in Aristotle.

543. Medieval Philosophy. Cr. 4
Prereq: PHI 210 or 211 or 257 or any philosophy course at the 300 level or above or consent of instructor. Topics concerning one or more of the major philosophers of the medieval period, such as Plotinus, Augustine, Anselm, Abelard, Aquinas, Scotus and Ockham.

544. Continental Rationalism. Cr. 4
Prereq: PHI 211 or any philosophy course at the 300 level or above or consent of instructor. Topics concerning Descartes, Spinoza or Leibniz.

545. British Empiricism. Cr. 4
Prereq: PHI 211 or any philosophy course at the 300 level or above or consent of instructor. Topics concerning Locke, Berkeley or Hume.

546. Kant. Cr. 4
Prereq: PHI 211 or any philosophy course at the 300 level or above or consent of instructor. Selected topics or readings in Kant's philosophy.

548. Pragmatism. Cr. 4
Prereq: PHI 212 or 213 or consent of instructor. Theories of knowledge, meaning, value and truth in the writings of Peirce, James, Dewey and Lewis.

551. Special Topics in the History of Philosophy. Cr. 4(Max. 8)
Prereq: any course in the History of Philosophy group or consent of instructor. Topics to be announced in *Schedule of Classes*.

781. Seminar in History of Philosophy. Cr. 6(Max. 12)
Study of a philosopher or period.

Theory of Value

232. Introduction to Ethics. Cr. 3
An introduction to some classic and modern views concerning such questions as: What determines the rightness and wrongness of actions? What is a good person? What is the good life? Offered every year.

233. Introduction to Social and Political Philosophy. Cr. 3
A survey of major political philosophers and their views concerning such issues as the nature of the state, justice, and the political authority. Readings from such philosophers as Plato, Hobbes, Marx and Rawls. Offered every year.

535. Optics. Cr. 3-5

Prereq: PHY 218 or 214, MAT 203. Material fee \$15 if registered for five credits; material fee \$15 for videotape sections. Only non-physics majors may take course without laboratory. Geometrical and physical optics: wave motion, interference, diffraction, refraction, dispersion, polarization.

555. Basic Electronics. Cr. 4

Prereq: PHY 214. Not open to physics majors. Material fee as indicated in *Schedule of Classes*. Basic electronics for biologists, chemists, high school science teachers and other interested students. D.C. and A.C. circuits, transistor circuits, solid state devices, amplifiers, oscillators, basic logic, and applications to measurement and instrumentation.

560. Applied Electricity and Magnetism. Cr. 3

Prereq: PHY 218 or 214, MAT 204. Material fee \$15 for videotape section. Electrostatics, magnetostatics, dielectrics, magnetic materials, capacitors, inductors, D.C. and A.C. circuits, complex representation of current elements, rectifiers and filters, p-n junctions and an introduction to transistors.

562. Electronics and Electrical Measurements. Cr. 5

Prereq: PHY 560 or consent of instructor. Material fee as indicated in *Schedule of Classes*. Amplifier circuits, operational amplifiers, oscillators, digital electronics, analog and digital measurements.

590. Directed Study. Cr. 1-3(Max. 6)

Prereq: junior standing and written consent of adviser and instructor. Primarily for students 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.

620. Theoretical Mechanics. Cr. 4

Prereq: PHY 520 and MAT 204. Material fee \$15 for videotape section. Accelerated reference frames, centrifugal and Coriolis forces, rigid body dynamics, motion of tops and gyroscopes, Lagrange's equations, constraints, Lagrange multipliers, general central force problem, stability of orbits, relativistic mechanics.

650. Thermodynamics and Kinetic Theory. Cr. 4

Prereq: PHY 218 or consent of instructor. Material fee \$15 for videotape section. 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.

660. Electromagnetic Fields. Cr. 4

Prereq: PHY 560 and MAT 507. Material fee \$15 for videotape section. Potential theory, electromagnetic field energy, Poynting vector, displacement current, Maxwell's equations, electromagnetic waves, wave guides and cavities.

680. Modern Physics. Cr. 3

Prereq: PHY 520 and MAT 204 or consent of instructor. Material fee \$15 for videotape section. Introduction to quantum mechanics, spectra and atomic physics, x rays, properties of nuclei, radioactivity, particle accelerators and detectors, nuclear reactions, elementary particles, solid state.

681. Modern Physics. Cr. 3

Prereq: PHY 680. Material fee \$15 for videotape section. Continuation of PHY 680.

685. Experimental Physics Laboratory. Cr. 2

Prereq: senior standing or consent of instructor. Material fee as indicated in *Schedule of Classes*. Selected experiments in a variety of fields of modern physics.

691. Special Topics. Cr. 1-4(Max. 12)

Prereq: consent of instructor. Topics and prerequisites for each section to be announced in *Schedule of Classes*. More than one section may be elected in a semester.

705. Elementary Solid State Physics. Cr. 3

Prereq: PHY 681. Material fee \$15 for videotape section. Contemporary solid state physics dealing primarily with experiments in this area and with modern descriptive models of solids.

706. Survey of Elementary Particle Physics. Cr. 3

Prereq: PHY 681. Material fee \$15 for videotape section. Experimental aspects; relativistic kinematics; quantum mechanical scattering, reaction and decay theory; historical survey; strong and weak interactions; classification of particles.

710. Methods of Theoretical Physics I. Cr. 3

Prereq: MAT 507 or equiv., or consent of instructor. Material fee \$15 for videotape section. Techniques for solution of physical problems.

711. Methods of Theoretical Physics II. Cr. 3

Prereq: PHY 710. Material fee \$15 for videotape section. Continuation of PHY 710.

720. Advanced Mechanics. Cr. 4

Prereq: PHY 620 or consent of instructor. Material fee \$15 for videotape section. Variational principles, central forces, transformation theory, Hamilton-Jacobi theory.

725. Relativity. Cr. 3

Prereq: PHY 620 or consent of instructor. Material fee \$15 for videotape section. 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.

740. Quantum Mechanics I. Cr. 4

Prereq: PHY 681 and 720 or consent of instructor. Material fee \$15 for videotape section. 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.

741. Quantum Mechanics II. Cr. 4

Prereq: PHY 740. Material fee \$15 for videotape section. Continuation of PHY 740.

742. Relativistic Quantum Mechanics. Cr. 4

Prereq: PHY 741. Material fee \$15 if electing videotape sections. Specialized problems using relativistic wave equations and introduction to field theory.

750. Statistical Mechanics. Cr. 4

Prereq: PHY 650, 740 or consent of instructor. Material fee \$15 for videotape section. Classical and quantum statistical mechanics and applications.

755. Solid State Physics I. Cr. 3

Prereq: PHY 740 or consent of instructor. Material fee \$15 for videotape sections. Crystal structure, elastic constants, introduction to band theory, semiconductors, magnetic properties of materials, optical properties of solids.

756. Solid State Physics II. Cr. 3

Prereq: PHY 755. Material fee \$15 for videotape section. Continuation of PHY 755.

760. Electromagnetic Theory I. Cr. 3

Prereq: PHY 660 or consent of instructor. Material fee \$15 for

particle radiation; pulsars, quasars and black holes.

Physics (PHY)

All courses with a laboratory have a non-returnable materials fee and are so indicated in the Schedule of Classes.

100. Conceptual Physics Laboratory. (PHS 190). Cr. 1
Prereq: PHY 102 if taken for three credits; written consent of instructor. No credit after PHY 102 if taken for four credits. Material fee as indicated in *Schedule of Classes*. Laboratory for PHY 102.

102. Conceptual Physics: The Basic Science. (PHS 191). Cr. 3-4

Material fee \$15 if elected for four credits. The physical world; a conceptual understanding of motion, forces, energy, matter, sound, electricity, magnetism, light; includes some observational astronomy. Lectures, demonstrations and optional laboratory; laboratory is strongly recommended.

104. Einstein, Relativity and Quanta: A Conceptual Introduction. Cr. 3

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.

106. Energy. Cr. 3

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.

202. Nuclear War. Cr. 4

May not be used to fulfill natural science group requirement. History of development and use of nuclear weapons technology and of negotiations attempting to control or eliminate their use. Science and technology of nuclear weapons, weapons delivery systems, weapons effects in peace and war. International and domestic political and ethical considerations in nuclear armament and disarmament.

213. General Physics. Cr. 4

Prereq: high school algebra and trigonometry. Material fee as indicated in *Schedule of Classes*. For general Liberal Arts students and for students preparing for medicine, dentistry, pharmacy and allied health sciences. Mechanics, thermal physics, wave motions, and optics.

214. General Physics. Cr. 4

Prereq: PHY 213. Material fee as indicated in *Schedule of Classes*. Continuation of PHY 213. Electricity, magnetism and introduction to modern physics.

217. General Physics. Cr. 4-5

Prereq: MAT 201; coreq: MAT 202. Only engineering students may elect for four credits; others must elect five credits; material fee \$15 when electing for five credits. For students specializing in physics, biology, chemistry, mathematics or engineering. Statics, kinematics, dynamics, energy and linear momentum, rotational kinematics and dynamics, angular momentum, simple harmonic motion, optics, continuum mechanics, thermodynamics.

218. General Physics. Cr. 4-5

Prereq: PHY 217, MAT 202. Only engineering students may elect for four credits; others must elect five credits; material fee \$15 when electing for five credits. Electrostatics, currents and circuit elements, magnetic fields, magnetic induction, A.C. circuits, electromagnetic waves, interference of waves, quantum phenomena, atoms, molecules,

spectra, nuclear physics.

221. General Physics Laboratory. Cr. 1-2 (Max. 2)

Prereq: PHY 217 or 218 if taken for four credits; written consent of instructor. Open only to engineering students. No credit after PHY 217 or PHY 218 if taken for five credits. Materials fee assessed for each credit elected. Material fee as indicated in *Schedule of Classes*. Laboratory for PHY 217 and PHY 218. Student registers for one credit per section.

310. The Sounds of Music. Cr. 4

Prereq: sophomore standing. Material fee as indicated in *Schedule of Classes*. For music majors and other students interested in the physical foundations of the production, perception, and reproduction of musical sounds. Makes only limited use of simple mathematics. Includes topics such as wave properties, loudness levels and the human ear, hearing loss, tone quality, frequency and pitch, musical intervals and tuning, room acoustics, the production of sound by various musical instruments, and electronic reproduction of music.

330. Introductory Modern Physics. Cr. 3

Prereq: PHY 218 or consent of instructor; coreq: MAT 204. For physics, chemistry, engineering, mathematics majors and other interested students. Introduction to relativity, quantum phenomena, atomic structure, quantum mechanics, condensed matter physics, quantum optics, nuclear physics, elementary particles, and anti-particles.

390. Directed Study. Cr. 1-3 (Max. 5)

Prereq: written consent of adviser and instructor. Primarily for students 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.

501. (AST 501) Astrophysics and Stellar Astronomy. Cr. 3

Prereq: PHY 214 or 218, MAT 201 or consent of instructor. An introduction to astrophysics and stellar astronomy for students in science, engineering and mathematics; emphasis placed on applications and tests of physical principles (atomic spectroscopy, nuclear physics, quantum mechanics and the general theory of relativity); stellar interiors and evolution; origin of the elements and electromagnetic and particle radiation; pulsars, quasars and black holes; galactic structure and cosmology.

502. Physical Basis of the Fine Arts. Cr. 3

No credit for physics majors. 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.

511. (I E 501) Environmental Core Course I: Systems Concepts in Environmental Science. Cr. 4

Prereq: junior standing or consent of director. Introduction to environmental problems, energy, resources, population and pollution. The environment as a system, concepts of feedback loops, exponential growth and decay. Applications of rational analysis to the prediction of the outcome of human activities.

512. (ENV 502) Environmental Core Course II: Environmental Impact. Cr. 4

Prereq: PHY 511 or consent of instructor. Continuation of PHY 511. Environmental games and simulations. Environmental impact statements and their legal, political and social framework. Group environmental research and service projects.

520. Applied Mechanics. Cr. 3

Prereq: PHY 218 or 214, MAT 203. Material fee \$15 for videotape section. Statics and dynamics of particles and systems with emphasis on applications to structures, oscillating systems, fluid flow, elasticity.

Candidacy must be established by the time fourteen 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 twenty-four credits in anthropology and related fields, including two graduate seminars in anthropology. Either prior to beginning graduate study or in addition to the twenty-four credit requirement, The following courses or their equivalents must be taken if the student has not completed them as an undergraduate: Anthropology 527, 531, and 638 or 639. A final examination is required on the thesis and the student's general command of the field. For degree requirements in the Concentration in Applied Medical Anthropology, see below.

Plan B: Not available in anthropology.

Plan C: Thirty-two 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. Interested students should consult the Department chairperson for further details.

— With a Concentration in Applied Medical Anthropology

This program leads to the degree of Master of Arts in Anthropology. The requirements for the concentration include ANT 210, 211, 520 and 540, or their equivalents. The concentration includes a core of conceptual and methodological courses in anthropology and related disciplines and one semester of supervised field training in a health service agency or organization, and is intended for students who seek a career in such settings or who are already practicing professionals. The concentration is not intended to lead to the Ph.D. in Anthropology; students who wish to continue for the doctorate and want to take the concentration should discuss program planning with the Graduate Committee in Anthropology at an early date.

The concentration includes the following courses: Anthropology 514, 570, 638 or 639, 720 and 768. Required courses in other departments are Sociology 525 (Social Statistics), and Computer Science 501 (Computers and Research). The requirements for the Plan A degree are satisfied by eight credits of Anthropology 899 involving supervised field training, a report on the field training submitted in thesis format, and a field study seminar. In addition, the student must elect one credit of Anthropology 798 (Field Problems), as part of the field training, and twelve elective credits in Anthropology and/or cognate disciplines in consultation with the advisory committee, for a total of forty-five credits. A final examination is required. Additional information about this program is available from the Department on request.

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 constitutes evidence of aptitude for doctoral work. The student must have had the following courses or their equivalents: Anthropology 210, 211, and 520.

In addition to the transcripts and other materials required by the Graduate School, the department requires three recommendations.

The recommendation forms may be secured from the Department office. The forms are to be returned to the chairperson 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 chairperson 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 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.

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 chairperson for further details.

Doctoral applicants are required to have two successive semesters in residence as full-time students as defined by the Graduate School. (See the appropriate section under 'Degree Requirements' on page 23 in the Graduate School section of this bulletin.)

COURSES OF INSTRUCTION¹

Anthropology (ANT)

210. Introduction to Anthropology. Cr. 3-4

Biological evolution, human variability, prehistoric man and early cultures, ethnography, language and cultural growth, diffusion and independent invention, problems of the field.

211. Introduction to Physical Anthropology. Cr. 3-4

Prereq: sophomore standing. Role of hereditary and environmental factors, human genetics, meaning of "race" and racial classifications, fossil records, evolution of man.

212. Survey of Prehistoric Archaeology. Cr. 3

A world-wide survey of prehistoric cultural evolution, with a broad overview of some of the basic theories about prehistoric archaeology and archaeological methods.

221. Introduction to Physical Anthropology Laboratory. Cr. 3

Coreq: ANT 211. Material fee as indicated in *Schedule of Classes*. Exercises designed to illustrate the scope and data of physical anthropology for the beginner. Evolutionary processes, comparative functional anatomy, human fossil record and molecular evolution. Techniques for assessing modern human variation, growth and development and nutrition. Primate behavior at the zoo.

310. Cultures of the World. Cr. 3

Prereq: sophomore standing. Selected representative cultures from Oceania, Islamic North Africa, Near East, Sub-Saharan Africa, Asia, American Indian.

390. Directed Study. Cr. 2-6(Max. 6)

Prereq: 16 credits in anthropology with grades of A or B; consent of instructor.

490. Honors Program in Anthropology. Cr. 2-6(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 chairperson or dean.

506. Urban Anthropology. (SOC 554). Cr. 3

Prereq: ANT 210 or consent of instructor. Social-cultural effects of urbanization from a cross-cultural perspective with emphasis on the developing area of the world. The process of urbanization; the anthropological approach in the area of urban studies.

512. Human Evolution. Cr. 3

Prereq: ANT 211 or consent of instructor. Fossil, behavioral and molecular evidence for the evolution of the human species. Emphasis on a structural functional approach to the origins of modern human biology. Current theories and models explaining human evolution compared and evaluated.

513. Nutritional Anthropology. Cr. 3

Prereq: ANT 210 or 211 or consent of instructor. The place of nutrition in the web of biological and cultural interactions that have marked our evolution. Special emphasis on modern populations encountering rapidly changing social spheres.

514. Biology and Culture. Cr. 3

Prereq: ANT 210 or 211 or consent of instructor. 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.

515. Primate Behavior. Cr. 3

Prereq: ANT 211 or consent of instructor. Comparative behavior of the non-human primates and its application to the understanding of human behavior.

516. Physical Anthropology of Women. Cr. 3

Prereq: ANT 211 or consent of instructor. Not open to students who enrolled in ANT 0665 during Spring 1980. The place of women in human evolution as judged from living non-human primates, the fossil record and modern gatherer/hunters. A cross-cultural view of the interplay between female physiology and behavior in modern peoples, especially regarding nutrition, maternity, breastfeeding and the menstrual cycle.

519. Peasant Culture. Cr. 3

Prereq: ANT 210 or SOC 201 or S S 191. Survey of peasant cultures around the world; social role of peasant and his relations to market, to village, and to town.

520. Social Anthropology. Cr. 3

Prereq: SOC 201 or S S 191 and S S 192 or ANT 210. Types of social organization and cultural heritage; ancient, primitive and complex cultures analyzed, compared, contrasted.

521. Methods in Anthropology. Cr. 3

Prereq: ANT 210, 12 credits in anthropology, elementary statistics or consent of instructor. A survey of research techniques in anthropology.

524. Anthropological Perspectives on the Role of Women. Cr. 3

Prereq: ANT 210 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.

525. Retention of African Culture in the New World. Cr. 3

Prereq: ANT 210 or S S 191 or SOC 201 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.

527. Introduction to Archaeology. Cr. 3

Prereq: ANT 210. Archaeological methods and theory, artifact analysis and dating techniques.

528. Field Work in Archaeology of the New World.

Cr. 5(Max. 10)

Prereq: ANT 210 and consent of instructor; 527 recommended. Introduction to reconnaissance and excavation of sites; preparation and cataloging of specimens.

529. The Structure of Language: Phonology. (LIN 529). Cr. 3

Prereq: consent of instructor. The sound systems of a variety of human languages compared and contrasted. Theories of the nature of sound systems and methods of analysis in phonology and morphophonology.

530. The Structure of Language: Grammar. (LIN 530) (ENG 574). Cr. 3

Prereq: ANT 529 or consent of instructor. The theory of grammatical systems examined through analysis of sentence and word formation in a variety of human languages. Diversity and universals in grammar and various theories of syntax reviewed.

531. Language and Culture. (LIN 531). Cr. 3

Prereq: ANT 210 or 520 or S S 191 or SOC 201 or consent of instructor. Introduction to the structure of language and to the ways that humans use language in the construction of human worlds. Diversity of the world's languages and universal properties of language; theories of language change.

532. Language and Society. (LIN 532). Cr. 3

An introduction to the functions of language in many kinds of human

¹ See page 633 for interpretation of numbering system, signs and abbreviations

Communication, Rhetoric And Public Address (SPC)

210. Persuasive Speaking. Cr. 3

Prereq: SPB 200. 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.

211. Argumentation and Debate. Cr. 3

Prereq: SPB 200. Logical and legal foundation of the argumentation process; practical experience in analysis, reasoning, case-building, evaluation of evidence, refutation and cross-examination.

220. Interpersonal Communication. Cr. 3

Introduction to theory and research on interpersonal communication; analysis of everyday communication situations; practice in interpersonal communication.

224. Forensics Practicum. Cr. 1-2(Max. 6)

Prereq: SPC 211 or consent of instructor. Two credits only with consent of instructor. Training and participation in debate and contest speaking.

311. Legal Communication. Cr. 3

Prereq: SPB 200; SPC 211 recommended. Analysis of persuasive strategies and courtroom techniques. Practice in legal argumentation and cross-examination.

312. Parliamentary Law and Legislative Behavior. Cr. 2

Theory and practice in parliamentary procedure and the behavior of legislative/deliberative organizations. Topics include methods of organizations, order and conduct of business, motions, formation of constitution and by-laws.

316. Contemporary Persuasive Campaigns and Movements. Cr. 4(Max. 8)

Rhetorical analysis of techniques utilized in specific campaigns and movements. Political campaigns and/or social movements offered in fall semester; advertising and consumerism offered in winter semester.

317. Fundamentals of Public Relations. Cr. 3

Prereq: SPB 200 or SPC 210 or equiv. No undergraduate credit after SPC 516. Historical background of the profession of public relations; communication variables in public relations; emphasis on presentational techniques, publicity preparation and development of special events.

321. Communication: Concepts and Contexts. Cr. 4

Survey of theory and research in communication with attention to a variety of communication contexts.

325. Introduction to Organizational Communication. Cr. 3

Introduction to principles and theories which can be used to guide the way people communicate in organizations.

501. Psychology of Human Communication. Cr. 3

Prereq: SPB 200 or equiv. Basic psychological principles as applied to human and interpersonal communication: process nature, emotion, motivation, language and personality.

504. Communication in the Black Community. (S E 537) (LIN 504). Cr. 3

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.

510. Speech Writing. Cr. 3

Prereq: SPC 210 or 211 or consent of instructor. Preparation and presentation of speech manuscripts. Emphasis on style of writing, use of supporting materials and factors of interest. Special problems of ghost-writing considered.

511. Decision Making and Controversy. Cr. 3

Prereq: SPC 211 or consent of instructor. Decision making from the perspective of public policy and contemporary argumentation theory.

516. Communication and Public Relations. Cr. 3

Prereq: SPC 317 or graduate standing. Overview of selected topics in communication as applicable to current practices and issues in public relations; corporate image and awareness campaigns, persuasive efforts of non-profit agencies; educational programs of consumer-related agencies; political and social campaigns.

517. Human Communication and the Aged. Cr. 3

Training in communication theories and skills relevant to the aged, current literature reviewed in preparation for devising strategies for improving interpersonal and institutional communication.

520. Group Communication and Human Interaction. Cr. 3

Theory, research, and practice in small group and interpersonal communication. Decision-making strategies; analysis of personal communication strengths.

521. Theories of Persuasion. Cr. 3

Prereq: SPC 210. Survey of theory and research on communication as social influence.

611. Argument and Controversy. Cr. 3

Prereq: SPC 210 or 211 or graduate standing. Advanced studies in argumentation, including the structure of reasoning, the organization of arguments, strategies of argument, and the nature of proof.

617. Theories of Interpersonal Communication. Cr. 3

Survey of theory and research on interpersonal interaction, with special emphasis on social perception, self-presentation, and the formation of relationships in interaction.

618. Communication Development. Cr. 3

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.

619. Internship in Organizational Communication and Public Relations. Cr. 1-4(Max. 6)

Prereq: written consent of instructor. Open only to majors. On-the-job observations and work experience in business, service, social, governmental, and industrial organizations. Emphasis on public relations and organizational communication.

620. Theories of Small Group Processes. Cr. 3

Prereq: SPB 200, SPC 520, or consent of instructor. Theory and research on communication in the small, task-oriented group.

624. Speech Communication Laboratory Practicum. Cr. 1-2(Max. 4)

Prereq: consent of speech communication laboratory director. Training and experience in laboratory projects and equipment utilization.

625. Organizational Communication. Cr. 3

Prereq: SPC 325 or graduate standing. Structure and function of communication in organizations; concepts and principles needed for effective management of organizational communication processes.

1. The design of the costumes, settings or lighting for a play at one of the University Theatres, or an assigned design/technical project. The student will work under the close supervision of one or more of the theatre arts faculty.
2. The student will submit a document consisting of a paper on their design or project, including sketches, renderings, technical drawings and photographs of the realized design.
3. The student will be examined on all work done on his/her program.

Students with a 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 background deficiencies 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. The M.F.A. program in *acting* is open only to members of the Hilberry Repertory Theatre.

Doctor of Philosophy —

With a major in speech communication and theatre, and emphases on communication and rhetorical processes; communication disorders and sciences; mass communications; oral interpretation; theatre; audiology; or general speech.

At the Ph.D. level the primary aims of this department are to help students develop the analytical skills necessary for the study of various communication acts and to improve their ability to communicate effectively in a variety of media and forums. Courses in the department are designed to serve several specific purposes:

1. To promote research and study into all aspects of the communication process.
2. To provide intensive training in such professional communication areas as theatre, radio, TV and film.
3. To prepare students for communication related careers in public service and private business organizations.
4. To train students as speech communication educators.
5. To provide therapy for those with problems of voice, articulation, rhythm, language or dialect.

Admission: Required prerequisites are a 3.3 (B = 3.0) honor point average, undergraduate or graduate work in the general field of communication, ability to write effectively, and demonstrated proficiency in speaking and reading.

In addition to completing all admission procedures in the Graduate School, the applicant for graduate study in speech should provide three letters of recommendation verifying academic interest and ability. The applicant should consult the Chairperson of the Departmental Graduate Committee as soon as possible.

For those desiring to specialize in audiology, it is recommended that early contact be made with the Department of Audiology, School of Medicine, 5E, University Health Center, 4201 St. Antoine, for specific requirements.

Degree Requirements: (1) SPB 700 or its equivalent; (2) a departmental major and minor and a minor outside the department; (3) four tool courses: courses in research methodologies germane to the student's dissertation research and ultimate personal objectives. Dissertations characteristically employ critical, historical or

quantitative methods. The tool requirement may be fulfilled, in part, by demonstrating suitable proficiency in a language useful to the student's dissertation research. Specific guidelines for each area of specialization are available in the office of the chairperson 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 major and minor areas in the student's plan of work.

Fellowships and Assistantships

Each year a number of graduate assistantships and fellowships are awarded to qualified graduate students. For information, write to the Chairperson of the Department or the Chairperson of the Departmental Graduate Committee.

Hilberry Repertory Theatre student fellowships are awarded annually on the basis of auditions arranged through the University Resident Theatre Association program. For further information, contact the Theatre Office.

COURSES OF INSTRUCTION¹

Basic Speech (SPB)

200. Effective Speech. Cr. 3

No student will be admitted after the third meeting of class. Beginning course to develop poise and confidence in speaking, emphasizing speaker's personality, voice, diction, bodily action; fundamentals of speech preparation.

390. Directed Study. Cr. 1-4 (Max. 4)

Prereq: speech major with sixteen credits completed in the department; written consent of chairperson. Not open to journalism majors.

700. Introduction to Graduate Study in Speech. Cr. 3

Required during the first 12 credits of all students entering graduate studies in speech.

790. Directed Study. Cr. 1-2 (Max. 4)

Prereq: written consent of chairperson, adviser and graduate officer.

799. Master's Essay Direction. Cr. 3

Prereq: consent of adviser.

899. Master's Thesis Research and Direction. Cr. 1-8 (8 req.)

Prereq: consent of adviser.

999. Doctoral Dissertation Research and Direction. Cr. 1-16 (Max. 30)

Prereq: consent of doctoral adviser. Offered for S and U grades only.

¹ See page 633 for interpretation of numbering system, signs and abbreviations

COURSES OF INSTRUCTION¹ (ENG)

010. Developmental English. Cr. 1-4

Prereq: consent of adviser. No degree credit. For the student requiring intensive work in basic writing.

050. Institute in English as a Second Language. Cr. 1-6

Offered for S and U grades only. Non-degree credit. Intensive course in English for speakers of other languages.

100. Basic Writing Laboratory. Cr. 2

Coreq: ENG 101 or 108. Offered for S and U grades only. No degree credit. Provides intensive work in the fundamentals of written English, including paragraph and essay structure, revision, and proofreading skills.

101. Composition Seminar. Cr. 2

Coreq: ENG 100. Offered for S and U grades only. No credit toward English graduation requirement. Extensive practice in fundamentals of college writing. Required of students qualifying on the basis of the English Placement Test.

102. Freshman Composition. Cr. 4

Prereq: placement or passing grade in ENG 101. Basic course in composition. Required of all Liberal Arts students except those exempted through the Advanced Placement Exam or the English Placement Test.

105. 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.

108. Writing Workshop. Cr. 2

Prereq: ENG 102 or equiv. Offered for S and U grades only. Open only to students who do not pass the English Proficiency Examination. Students must demonstrate writing proficiency in order to receive credit. Achieving an S grade in ENG 108 satisfies the English Proficiency Examination requirement.

110. Good Books. Cr. 4

For the general reader interested in exploring and appreciating a variety of good books from the past and present. Emphasis on various imaginative responses to human experience.

112. Literature and Ideas. Cr. 4

Works from various literary cultures dealing with important ideas in the history of mankind's thinking about itself.

114. Contemporary Fiction. Cr. 3

Fiction (short stories, novellas and novels) of the last thirty years.

115. Short Story. Cr. 3

Selected readings in the modern short story: European, British and American.

120. Film and Literature. Cr. 4

Film and its relation to literature.

125. Popular Culture. Cr. 3

Various media, genres, phenomena and themes examined within their historical, cultural and literary contexts.

128. Science Fiction. Cr. 3

Science fiction as art form; emphasis on major works by twentieth century American writers, with some attention to historical development.

129. The Detective Novel. Cr. 3

Detective fiction as art form; emphasis on modern masters such as Christie, Hammett, MacDonald, Sayers.

205. Freshman Honors: English II. Cr. 4

Open only to students in Liberal Arts Honors program. Continuation of ENG 105.

210. Introduction to Poetry. Cr. 4

Reading of American and English poems to illustrate the nature of poetic communication.

211. Introduction to Drama. Cr. 4

Critical reading of representative plays of western civilization from the Golden Age of Greece to the contemporary stage.

212. Introduction to Fiction. Cr. 4

Introduction to techniques and forms of fiction through reading of short stories and novels; plot, character, imagery and thematic development.

215. Introduction to Literary Criticism. Cr. 3

Approaches to the systematic study of literary works and problems: biographical, bibliographical, historical, structural, linguistic, psychological, sociological.

216. Masterpieces of World Literature: Classical to Renaissance. Cr. 3

Readings in translation from the literature of Greece, Rome, the Orient and Medieval Europe.

217. Masterpieces of World Literature: Renaissance to Modern. Cr. 3

Readings in translation from European and Oriental literatures.

220. Shakespeare. Cr. 3

Emphasis on the dramatic and literary qualities of the plays: representative comedies, tragedies and histories.

221. Great English Novels. Cr. 3

Representative sample of important and pleasurable English novels between the eighteenth century and modern times.

225. English Authors. Cr. 3(Max. 12)

Chief works of a major author or several authors. Literary techniques, innovations, themes and historical context. Sample authors: Chaucer, Swift, Dickens, Shelley and Lawrence. Topics to be announced in *Schedule of Classes*.

231. Major American Books. Cr. 3

Representative texts in prose, poetry and drama by such writers as Emerson, Twain, Dickinson, O'Neill, Ellison.

235. American Authors. Cr. 3(Max. 12)

Chief works of a major author or several authors and their contributions to American literature. Literary techniques, innovations, themes and historical context. Sample authors: Emerson, Faulkner, Poe, Twain, Wright. Topics to be announced in *Schedule of Classes*.

239. Introduction to Afro-American Literature. Cr. 4

Emphasis on works by modern writers, but some attention to historical development; such works as *Native Son*, *Autobiography of Malcolm X*, *Song of Solomon*.

240. Literary Themes. Cr. 3(Max. 12)

Literature in a topical or thematic context. Topics such as literature of the modern American South, politics and the novel. Topics to be announced in *Schedule of Classes*.

¹ See page 633 for interpretation of numbering system, signs and abbreviations

241. Literary Genres. Cr. 3(Max. 12)

Literary works from a generic perspective; the epic, recent experimental fiction, and other topics to be announced in *Schedule of Classes*.

245. Introduction to Film. (SPF 201). Cr. 4

Material fee as indicated in *Schedule of Classes*. Examination of film techniques and basic methods of film analysis.

246. History of Film. (SPF 202). Cr. 4

Material fee as indicated in *Schedule of Classes*. Critical study of the motion picture as a modern visual art; screening and analysis of representative fiction films to illustrate important historical periods and genres.

250. The English Bible as Literature. Cr. 4

The King James text as a literary masterpiece.

252. Asian Classics. Cr. 3

Representative works of three major traditions: Indian, Chinese and Japanese.

255. Literature, Language and Labor. Cr. 3

Work experience of men, women and ethnic groups in imaginative literature: fiction, drama, poetry, work songs, folk materials, autobiographies in their historical and cultural contexts.

257. Introduction to Women's Studies Through Literature. Cr. 3

Survey of cultural and historical attitudes toward women as seen through the works of women writers.

258. Literature and Psychoanalysis. Cr. 3

Introduction to psychoanalytical approaches to literature and literary criticism. Freudian and post-Freudian theories of interpretation, myth, archetypal criticism, psychoanalytic formalism and reader response criticism. Emphasis on practice of interpreting literature from a psychoanalytic perspective.

259. Philosophy and Literature. Cr. 3

Effect of philosophical thought on literature in a historical context.

260. Introduction to Folklore. Cr. 4

Kinds of folklore behavior in different social contexts; field and archival research; theories of interpretation of data.

261. Topics in Folklore. Cr. 3(Max. 12)

Selected themes, genres, folk groups in traditional culture. Afro-american folklore, folklore of and about women, folksong and ballad.

270. Introduction to Contemporary English. Cr. 3

Ways in which use of language affects communication: denotation and connotation, analysis of language of advertising, business, government and education.

271. Language: Acquisition and Application. Cr. 3

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.

280. Techniques of Imaginative Writing. Cr. 4

Writing in various creative forms. Frequent individual conferences and student readings for class criticism.

281. Apprentice Poetry Writing. Cr. 3

Instruction and practice in the art of English and American poetic forms: patterns of sound, quantitative values, diction, metaphors and images.

282. Apprentice Fiction Writing. Cr. 3

Fundamentals of fiction, mainly the short story. Analysis of stories by established writers and by students. Frequent individual conferences.

283. Apprentice Play Writing. Cr. 3

Basic instruction in the development of plays for stage and television, or of movie scenarios. Attention to the writing of dialogue.

291. Women's Studies I: Women's Lives. (HIS 377). Cr. 3(Max. 6)

Examination of women's writings in various forms: diary, journal, autobiography, biography, essay, interview and film.

299. Sophomore Honors Colloquium. Cr. 3

Prereq: ENG 102 or equiv.; consent of director of Liberal Arts Honors Program. Literary theme, figure or genre with individualized study. Topics to be announced in *Schedule of Classes*.

301. Techniques of Expository Writing. Cr. 3

Prereq: ENG 102 or equiv. Writing of brief formal and informal essays. Emphasis on clarity, logical organization, effective diction, and individual style.

303. Writing the Research Paper. Cr. 3

Prereq: ENG 102 or equiv. Writing of papers requiring library research. Instruction in the use of source material, in footnotes and bibliography.

305. Technical Report Writing I. (ENG 580). Cr. 3

Prereq: engineering students, successful completion of English Proficiency Exam, sophomore standing; all others: ENG 102 or equiv. and sophomore standing. Basic technical writing skills and procedures for preparing technical reports.

306. Technical Report Writing II. (ENG 581). Cr. 3

Prereq: ENG 305. Intermediate technical report writing and basic technical presentation skills.

307. The Personal Essay. Cr. 3

Writing of autobiographical, impressionistic, philosophical essays; analysis of essays by such writers as Loren Eiseley, Thoreau, E.B. White.

308. Writing from Evidence. Cr. 3

Prereq: ENG 102 or equiv. Argumentative writing, including persuasive essays, legal memoranda, and a research paper; analysis and evaluation of factual and inferential proof in judicial decisions and other argumentative texts, legislative hearings.

311. Survey of English Literature to 1700. Cr. 3

Selected works from such writers as Chaucer, Spenser, Shakespeare, Donne, Milton. Required of English majors.

312. Survey of English Literature After 1700. Cr. 3

Selected works from such writers as Swift, Pope, Wordsworth, Dickens, Tennyson, Eliot, Hardy. Required of English majors.

314. Survey of American Literature. Cr. 3

Historical survey of American literature from the colonial period through the twentieth century with emphasis on nineteenth and early twentieth centuries.

485. Senior Colloquium. Cr. 3

Integrating seminar especially, but not exclusively, for senior English majors. Topics vary.

490. Directed Study: Honors Program. Cr. 3-6(Max. 24)

Prereq: consent of instructor or English Honors Committee.

Master of Science

Degree Requirements:

1. Total of twenty-two credits in course work which must include:
 - a) one credit in CHM 885.
 - b) two or three credits of seminar (CHM 880, 881, 882, 883, or 884).
 - c) twelve credits in chemistry courses open to graduate chemistry students (excluding research, seminar, CHM 885, and proficiency courses) of which at least nine credits must be at the 700 level.
 - d) up to seven credits of chemistry proficiency and/or cognate courses.
2. Eight credits of CHM 899 involving independent thesis research under the direction of a faculty member in the Department.
3. Submission of a satisfactory research thesis.

Master of Arts

Degree Requirements:

1. Total of thirty-two credits in course work which must include:
 - a) at least eighteen credits in chemistry courses open to graduate chemistry students (excluding research, seminar, CHM 885, and proficiency courses) of which at least nine credits must be at the 700 level. Courses must be elected in at least four of the following fields (excluding proficiency courses): analytical, biochemistry, inorganic, organic, physical.
 - b) at least one credit in CHM 885.
 - c) at least two credits of graduate seminar (CHM 880, 881, 882, 883, or 884).

Doctor of Philosophy

Admission: 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 Graduate Officer of the Department of Chemistry.

A minimum undergraduate honor point average of 3.0 in chemistry and cognate science 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).

Candidacy: 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 consists of a series of short cumulative examinations administered about seven times per year, of which a student must obtain six passes within sixteen attempts, two-thirds of which must be 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 School or the department must be completed. Copies of such requirements may be obtained from the Chairperson of the Departmental Committee on Graduate Study.

Degree Requirements:

1. Total of twenty-seven credits of graduate course work exclusive of remedial courses (CHM 681, 682, 683, 684, 685), not less than nine of

which shall be taken outside the major division of specialization. The minor requirement may be satisfied in any one of the following ways:

a) Outside Minor: may be satisfied in any one related field (biology, mathematics, physics, chemical engineering, etc.) with appropriate courses at the 500 level and above.

b) Distribution Chemistry Minor: may be satisfied by any combination of 700-level courses outside the major division (including 700-level courses taken to satisfy proficiency requirements).

c) Concentration Chemistry Minor: may be satisfied by nine credits in a single division outside the major division of which at least six credits must be at the 700 level.

2. *Credit by Examination:* Well-prepared students may receive up to nine credits by passing the final examinations in 600- or 700-level courses. These may be in either the major or minor fields.

3. At least four credits of graduate seminar (CHM 880, 881, 882, 883, or 884).

4. At least one credit in CHM 885.

5. *Language Requirement:* Basic proficiency in a foreign language must be established within two years after admission to the Ph.D. program. Alternative procedures are:

(a) satisfactory completion at the undergraduate level of one year of French, German, or Russian (advanced placement for prior training is acceptable) with at least a 'C' in all courses taken in that language.

(b) satisfactory completion of a reading examination in French, German, or Russian as administered and graded by the appropriate language department.

(c) satisfactory performance on the Educational Testing Service Graduate School Foreign Language Test in French, German, or Russian.

6. Thirty credits in CHM 999 (Ph.D. research) involving independent research under the direction of a faculty member in the Department.

7. Satisfactory completion of a 'Pre-Oral' examination based on the student's doctoral research is required prior to the final writing of the dissertation and at least six weeks before the final public lecture-defense.

8. Submission of a satisfactory research dissertation.

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 and 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 Graduate Admissions Officer, Department of Chemistry, 277 Chemistry Building.

COURSES OF INSTRUCTION¹ (CHM)

Minimum grade of C is required in every prerequisite course. Most laboratory courses have a non-returnable materials fee and are so indicated in the Schedule of Classes. Breakage fees are not withheld, but students are financially responsible for the repair or replacement of University materials damaged or destroyed in classroom procedures. The parenthetical notation at the end of the course description indicates the most probable semesters in which the course will be offered. (F= Fall, W= Winter, S= Summer)

100. Chemistry and Your World. (PHS 192). (Lct: 3; Lab: 3). Cr. 3-4

Material fee \$15 if elected for four credits. For non-science majors. Facts and theories from analytical, inorganic, organic, and physical chemistry, and from biochemistry; their consequences in history, politics, economics, education, and other facets of the world. Satisfies the Liberal Arts natural science group requirement for a laboratory course when taken for four credits. (F,W)

102. General Chemistry I. (Lct: 3; Quz: 1; Lab: 3). Cr. 4

Prereq: intermediate high school algebra recommended. Material fee as indicated in *Schedule of Classes*. High school chemistry not required. First course in the terminal sequence consisting of CHM 102 and CHM 103. Matter and energy in chemistry, chemical symbols and equations, structure and properties of atoms, introduction to chemical bonding; periodicity in chemistry, solids, liquids, gases, solutions, acids and bases, and equilibrium. (F,W)

103. General Chemistry II. (Lct: 3; Quz: 1; Lab: 3). Cr. 4

Prereq: CHM 102. Material fee as indicated in *Schedule of Classes*. Terminal course in organic and biological chemistry. Structures, reactions, and syntheses of some of the most important organic compounds; covalent bonding; survey of biochemistry with applications to nutrition, physiology, and clinical chemistry; protein structure, intermediary metabolism; molecular biology, and metabolic regulation. (W,S)

The beginning chemistry sequences 105 (or 107), and 108 or 131 and 132 are prerequisite for all other courses in chemistry.

105. Introductory Principles of Chemistry. (Lct: 4; Quz: 2; Lab: 4). Cr. 6

Prereq: intermediate high school algebra. Only three credits after CHM 102. Material fee as indicated in *Schedule of Classes*. Principles of chemistry and their applications, atomic and molecular structure, periodicity, states of matter, solutions, chemical bonds, principles of chemical thermodynamics and chemical kinetics. (F,W,S)

107. Principles of Chemistry I. (Lct: 3; Quz: 1; Lab: 3). Cr. 4

Prereq: completion of one year of high school chemistry; high school algebra; satisfactory score on qualifying examination in high school chemistry. Only two credits after CHM 102; no credit after CHM 105. Material fee as indicated in *Schedule of Classes*. Principles of chemistry and their applications, atomic and molecular structure, states of matter, periodicity, solutions, chemical bonds, principles of chemical thermodynamics and chemical kinetics. (F,W)

108. Principles of Chemistry II. (Lct: 3; Quz: 1; Lab: 4). Cr. 5

Prereq: CHM 105 or 107 or equiv. Material fee as indicated in *Schedule of Classes*. Continuation of CHM 105 or CHM 107. Acids and bases; chemical equilibria, especially those of acid-base, oxidation-reduction, complex formation, and precipitation reactions in aqueous solution; properties and reactions of inorganic substances; qualitative analysis of common inorganic ions. (F,W,S)

131. Chemical Principles and Analysis I. (Lct: 3; Quz: 1; Lab: 4). Cr. 5

Prereq: one year of high school chemistry and algebra; evidence of superior potential (Merit Scholarship, Honors Program, superior performance on the CHM 107 Placement Examination or similar criteria). Material fee as indicated in *Schedule of Classes*. Brief review of basic chemical principles and atomic and molecular structure; application of chemical principles in chemical phenomena with emphasis on chemical reactions in the gaseous and liquid states and in solution. The two-semester sequence of CHM 131 and CHM 132 covers the material in the three semester sequence CHM 107, CHM 108, CHM 312. (F)

132. Chemical Principles and Analysis II. (Lct: 3; Quz: 1; Lab: 4). Cr. 5

Prereq: CHM 131 or consent of instructor. Material fee as indicated in *Schedule of Classes*. Continuation of CHM 131. Qualitative and quantitative determination of selected elements in chemical samples. Chemical equilibrium concepts and calculations. (W)

220. Survey of Organic Chemistry. (Lct: 4; Quz: 1). Cr. 5

Prereq: CHM 108 or equiv. Principles of structure and reactions in organic chemistry. Properties of organic compounds. Designed for students whose program does not require a more detailed treatment of organic chemistry. (F)

224. Organic Chemistry I. (Lct: 3; Quz: 1; or Lct: 4). Cr. 4

Prereq: CHM 108 or 132 or equiv. No credit after CHM 220. The sequence CHM 224, CHM 226, and CHM 227 meets requirements for premedical, pre dental, pharmacy and chemical engineering students. Required for chemistry majors. Structure, stereochemistry, and physical properties of all important classes of organic compounds. Introduction to organic spectroscopy. Reaction intermediates. (F,S)

226. Organic Chemistry II. (Lct: 3; Quz: 1; or Lct: 4). Cr. 4

Prereq: CHM 224 or equiv. Continuation of CHM 224. Reactions of aliphatic and aromatic compounds. Reaction mechanisms; multi-step syntheses; heterocyclic compounds, amino acids, proteins, carbohydrates, nucleic acids. (W,S)

227. Organic Chemistry Laboratory. (Lct: 1; Lab: 5). Cr. 2

Prereq: CHM 224; prereq. or coreq: 220. Material fee as indicated in *Schedule of Classes*. Experiments to familiarize students with important laboratory techniques, with methods of identifying organic compounds, with reactions of important classes of aliphatic and aromatic compounds, and with the scope and limitations of organic syntheses. (F,W,S)

231. Organic Structure and Reactions. (Lct: 3; Lab: 8). Cr. 5

Prereq: CHM 132 or 108 and consent of instructor. Material fee as indicated in *Schedule of Classes*. Structure, stereochemistry, and physical properties of all classes of organic compounds. Introduction to organic spectroscopy. Experiments dealing with organic laboratory techniques and reactions of important classes of aliphatic and aromatic compounds. The two semester sequence CHM 231, CHM 232 covers the material in CHM 224, CHM 226, CHM 227, CHM 551. (F)

232. Organic-Inorganic Synthesis. (Lct: 3; Lab: 8). Cr. 5

Prereq: CHM 231 or consent of instructor; coreq: 302 or consent of instructor. Material fee as indicated in *Schedule of Classes*. Organic reactions and reaction mechanisms. Multi-step synthesis; heterocyclic compounds, amino acids, proteins, carbohydrates, nucleic acids. Advanced techniques in synthesis. (W)

236. Organic Chemistry II: for Chemical Engineers. Cr. 2

Prereq: CHM 224 or equiv. Open only to chemical engineering students. Continuation of CHM 224 for chemical engineers. Reactions of aliphatic and aromatic compounds; reaction mechanisms. (W,S)

¹ See page 633 for interpretation of numbering system, signs and abbreviations

Prospective graduate majors should consult the chairperson of the Departmental Committee on Graduate Study prior to registration.

Candidacy must be established by the time twelve credits have been earned. Applicants become degree candidates only upon recommendation by the graduate adviser with the approval of the departmental chairperson.

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 departmental chairperson. Under *Plan A*, eight credits of the required thirty-two 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. Under *Plan C*, students 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 electives must be courses with laboratories. Specialized *Plan C* master's can also be earned within the divisions (consult divisional advisers).

Doctor of Philosophy

Admission: In addition to the requirements of the Graduate School, the applicant should present a bachelor's or master's degree with a major in biological sciences or some subdivision thereof. Students with majors in other sciences are also encouraged to apply. Course work should include the fields of genetics, ecology, 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 Department of Biological Sciences Graduate Admissions Committee.

Degree Requirements: In addition to those stated on page 22, the *language requirement* will be specified for each student by the major professor in consultation with other members of the Dissertation Committee. The *Preliminary Examination* must be passed by all doctoral students no later than the end of fall term, two years after admission. The *Qualifying Examination* consisting of written and oral parts must be taken after completion of 75 percent or more of the required course work and no later than the third year of residence. *Final Defense* of the dissertation must be completed according to the schedule published by the University in the student's final term.

Teaching Requirement: All biological sciences students in a post-baccalaureate thesis 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 Dissertation Committee is responsible for seeing that this requirement is met each year. The training assignment involves appropriate teaching, research or professional activities.

Continuance in the doctoral program depends upon satisfactory progress as determined by the student's Dissertation Committee with the departmental chairperson as an ex-officio member.

Assistantships and Scholarships: Teaching and research assistantships are available to qualified graduate students. Inquiries and application should be directed to the chairperson of the Graduate Committee, Department of Biological Sciences.

COURSES OF INSTRUCTION¹ (BIO)

Most laboratory courses have a non-returnable materials fee and are so indicated in the Schedule of Classes. Breakage fees are not withheld, but students are financially responsible for the repair or replacement of University materials damaged or destroyed in classroom procedures. The parenthetical notation at the end of the course description indicates the most probable semesters in which the course will be offered. (F=Fall, W=Winter, S=Spring)

100. An Introduction to Life. (Lab: 3; Lct: 3). Cr. 4
Not offered for major credit. Material fee as indicated in *Schedule of Classes*. For the non-science major. A factual and conceptual treatment of modern biology at the cell, organismal, and population levels of organization.

101. Basic Biology I. (Lab: 3; Lct: 3). Cr. 4
Prereq: high school science or BIO 100. BIO 101-BIO 102 sequence required of all biology majors. Material fee as indicated in *Schedule of Classes*. Factual and conceptual treatment of cell molecules, cell structure, metabolism, genetics, development and taxonomy. (F,W,S)

102. Basic Biology II. (Lab: 3; Lct: 3). Cr. 4
Prereq: BIO 101 or 100 with consent of instructor. BIO 101-BIO 102 sequence required of all biology majors. Material fee as indicated in *Schedule of Classes*. Ecology and evolution, their principles, strategies and outcomes in both structure and function. (F,W,S)

103. Man and the Environment. (Lct: 3). Cr. 3
Not for biology major credit. The biological consequences of human population growth and technology on the environment. Partially satisfies Liberal Arts natural science group requirements. (F,W,S)

120. Microbes and Human Affairs. (Lct: 2). Cr. 2
Role of microbes in food, agriculture, industry and medicine; novel uses in basic research. The evolution of infectious disease will be discussed with its impact on manners and mores.

187. Anatomy and Physiology. (Lab: 4; Lct: 3). Cr. 5
Prereq: BIO 100 or 101. 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.

220. Introductory Microbiology. (Lab: 4; Lct: 2). Cr. 3
Prereq: BIO 100 or 101. Material fee as indicated in *Schedule of Classes*. Bacteria and their basic biology; the relationship of microorganisms to man and other living forms, including their ecological importance and their role in the causation of disease; laboratory exercises paralleling the above principles. (F,W,S)

221. Introductory Microbiology for Non-Majors. (Lct: 2). Cr. 2
Prereq: BIO 101 or 100 with consent of instructor. Bacteria and their basic biology; the relationship of microorganisms to man and other living forms including their ecological importance and their role in the causation of disease. (F)

240. Plants and Human Affairs. (Lct: 2). Cr. 2
The role of plants in human well-being and in the past development and present maintenance of civilization.

251. Plant Morphology. (Lab: 3; Lct: 2). Cr. 3
Prereq: BIO 102. Anatomy and general morphology of tracheophytes.

¹ See page 633 for interpretation of numbering system, signs and abbreviations

2. Biological Sciences 101, 102, 602, 616, 617, and an additional eight semester credits are required. No course having '8' as the second digit may be used for departmental major credit.
3. Mathematics 201 through 204 are required.
4. Physics 217 and 218 and an additional three credits in physics beyond 218 are required.
5. Chemistry 107, 108, 224, 226, 227, 542 and 544 are required.
6. Computer Science 206 or equivalent is required.
7. In the senior year, students should enroll in at least one semester of Biological Sciences 596.

Suggested Program Two

The purpose of the undergraduate biophysics and molecular biology specialty is to encourage students to obtain a broader background in physicochemical sciences for advanced studies in biophysics and molecular biology, as well as in biological sciences. *Students are strongly urged to complete the departmental core requirements.*

First Year

Fall Semester

Biology 101	4
Chemistry 107	4
Language	4
English 102	4
Total:	16

Winter Semester

Biology 102	4
Chemistry 108	5
Language	4
English elective	3
Total:	16

Second Year

Biology elective	4
Mathematics 201	4
Chemistry 224	4
Language	4
Total:	16

Mathematics 202	4
Chemistry 226	4
Chemistry 227	2
Group Requirement	3
Group Requirement	4
Total:	17

Third Year

Mathematics 203	4
Physics 217	4
Biology 602	4
Comp. Sci. 206	3
Total:	15

Mathematics 204	4
Physics 218	4
Biology 616	3
Biology 617	3
Group Requirement	3
Total:	17

Fourth Year

Chemistry 542	3
Physics 330	3
Biology 594	1
Biology 596	1
Group Requirement	4
Total:	12

Chemistry 544	3
Biology 594	1
Biology 596	2
Group Requirement	4
Group Requirement	4
Total:	14

HONORS PROGRAM

for Liberal Arts students only

Honors students in the Department of Biological Sciences must satisfy the following requirements:

1. Completion of required courses in College of Liberal Arts Honors Program
2. Enrollment in honors sections of Biological Sciences 100 or 101, and 102.

¹ Or equivalent.

3. Consultation with Biological Sciences Honors Adviser during freshman year.
4. Attendance at annual 'Meet the Professor' informal reception.
5. Completion of Biological Sciences core courses for the B.S. or B.A. degree.
6. Completion of Biological Sciences 390, Directed Study, minimum two credits (Max. 4); 590, Honors Directed Study, minimum two credits (Max. 4); 595, Senior Honors Seminar, two credits; 599, Terminal Essay, two credits.

Students must maintain an over-all honor point average of at least 3.1 in the major to be awarded the Honor's Certificate.

Transfer of other students with a Biological Sciences h.p.a. of 3.5 may be accepted into the program without having had the introductory honors sequence and with acceptance into the Liberal Arts Honors Program.

Program Calendar

Year I: Completion of honors component in Biological Sciences 100 or 101, and 102; meeting with the Biological Sciences Honors Adviser, and selection of the student's supervisor after attendance at an informal 'Meet the Professor' faculty reception near the end of the winter semester.

Year II: Entry into Directed Study, Biological Sciences 390; completion of credits under the tutelage of the honors supervisor.

Year III: Continuation of Directed Study, Biological Sciences 390, minimum two credits (Max. 4); beginning of Honors Directed Study, Biological Sciences 590.

Year IV: Completion of: Biological Sciences 590, minimum two credits (Max. 4); Biological Sciences 595 (Senior Seminar, two credits); Biological Sciences 599 (Terminal Honors Essay, two credits). The essay must be approved by the chairperson and honors adviser in addition to the student's supervisor.

Post-Baccalaureate Requirement

All biological sciences students in a post-baccalaureate thesis 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 thesis committee is responsible for seeing that this requirement is met each year. The training assignment involves appropriate teaching, research, or professional activities.

Master of Science

Plan A: Twenty-four credits in course work, plus a thesis (eight credits).

Plan C: Thirty credits in course work, approximately one-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 3.0 or better), including adequate preparation in biological sciences (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 University 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.

899. Master's Thesis Research and Direction. Cr. 1-8(8 req.)
Prereq: consent of adviser.

Modern Greek

111. Elementary Modern Greek. Cr. 4
Training in pronunciation, conversation and reading.

112. Elementary Modern Greek. Cr. 4
Prereq: GRK 111 or equiv. Continuation of GRK 111.

211. Intermediate Modern Greek. Cr. 4
Prereq: GRK 112 or equiv. Review of grammar, practice in oral and written modern Greek, based on readings in modern Greek literature.

261. Readings in Modern Greek Literature. Cr. 4
Prereq: GRK 211 or equiv. Selections from major contemporary authors.

310. Survey of Modern Greek Literature: From the Beginnings to the Twentieth Century. Cr. 4
Prereq: GRK 261 or equiv. Selected readings of major Greek writers from the tenth century through the Fall of Constantinople down to the twentieth century; language and stylistic analysis.

361. Kazantzakis and Seferis. Cr. 4
Prereq: GRK 261 or equiv. Representative selections of the prose writings of Nikos Kazantzakis and the poetry of George Seferis.

371. Modern Greek Literature and Culture. Cr. 4
No knowledge of modern Greek required for this course; all readings in English translation; satisfies humanities group requirement; does not satisfy foreign language requirement. Survey of the culture and civilization of modern Greece through a study of their literature, customs, festivals and popular art.

Latin (LAT)

101. Elementary Latin. Cr. 4
Basic vocabulary, forms, grammar.

102. Elementary Latin. Cr. 4
Prereq: LAT 101. Continuation of LAT 101, with increasing emphasis on reading ability.

150. Intensive Latin Review. Cr. 4
Prereq: two years of high school Latin or consent of instructor. Open as a beginning language only to other language majors or graduate students. Intensive and accelerated review of Latin fundamentals.

201. Latin Literature. Cr. 4
Prereq: LAT 102. Representative selections of Latin prose and poetry.

260. Latin Poetry. Cr. 4
Prereq: LAT 201 or equiv. or consent of instructor. Representative selections of the poetry of Catullus, Virgil, Horace, Ovid, Martial and Latin elegy.

315. Cicero. Cr. 4
Prereq: LAT 201 or 260 or equiv. Selections from the basic philosophical and rhetorical writings of Cicero and from his letters.

330. Virgil. Cr. 4
Prereq: LAT 201 or 260 or equiv. Representative selections from the poetry of Virgil.

500. Intensive Latin for Graduate Students. Cr. 1-3
Basic vocabulary, forms and grammar of Latin leading to the reading of continuous Latin prose passages.

510. Latin Prose Composition. Cr. 2
Prereq: LAT 260 or equiv. or consent of instructor. Writing of continuous Latin prose.

581. Roman Historians. Cr. 4
Prereq: LAT 260 or equiv. or consent of instructor. Selected readings from Tacitus, Livy, Caesar or Sallust illustrating the Roman rhetorical and ethical analysis of their republican and imperial history.

583. Lucretius. Cr. 4
Prereq: LAT 260 or equiv. or consent of instructor. Study of the *De Rerum Natura*.

586. Horace. Cr. 4
Prereq: LAT 260 or equiv. or consent of instructor. Representative selections from the poetry of Horace.

590. Directed Study. Cr. 1-4(Max. 8)
Prereq: undergrad., written consent of chairperson; grad., written consent of chairperson and graduate officer.

620. Special Studies. Cr. 2-4(Max. 8)
Prereq: LAT 315 or equiv. or consent of instructor. In-depth approach to special aspects of Latin studies, such as paleography, topography, numismatics. Topics to be announced in *Schedule of Classes*.

682. Roman Rhetoric. Cr. 4
Prereq: LAT 315 or equiv. or consent of instructor. Study of Roman rhetorical theory and practice.

684. Roman Drama. Cr. 4
Prereq: LAT 315 or equiv. or consent of instructor. Selected plays of Plautus, Terence and Seneca.

685. Latin Pastoral Poetry. Cr. 4
Prereq: LAT 315 or equiv. or consent of instructor. Study of the *Eclogues* and *Georgics* or Virgil.

689. Roman Satire. Cr. 4
Prereq: LAT 315 or equiv. or consent of instructor. Studies in the satire of Horace, Persius and Juvenal.

781. Studies in Latin Poetry. Cr. 4(Max. 12)
Prereq: major in Classics or Latin or consent of instructor. A major poet or genre of poetry. Topics to be announced in *Schedule of Classes*.

782. 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*.

788. The Roman Revolution. Cr. 4
Prereq: major in Classics or Latin or consent of instructor. Intensive study in historical problems related to the fall of the Roman Republic and the establishment of the Empire.

796. Research Problems. Cr. 1-4(Max. 8)
Prereq: undergraduate major in Latin, consent of adviser.

799. Master's Essay Direction. Cr. 3
Prereq: consent of adviser.

899. Master's Thesis Research and Direction. Cr. 1-8(8 req.)
Prereq: consent of adviser.

HISTORY

Office: 838 Mackenzie Hall

Chairperson: Melvin Small

Professors

Thomas N. Bonner, William J. Bossenbrook (Emeritus), William J. Brazill, Jr., R. V. Burks, Milton Covensky (Emeritus), Corinne Gilb, Sidney Glazer (Emeritus), C. Norman Guice (Emeritus), Edwin C. Hall, Winfred A. Harbison (Emeritus), Finley A. Hooper, Christopher H. Johnson, Harry Magoulias, Philip P. Mason, T. F. Mayer-Oakes (Emeritus), Richard D. Miles, Samuel F. Scott, Melvin Small, Goldwin Smith (Emeritus), Robert H. Zieger

Associate Professors

Charles K. Hyde, Alan Raucher, Monica Schuler, Stanley D. Solvick, Anne Y. Zimmer

Assistant Professors

Effie Ambler, John Bukowczyk, Marc Kruman, F. Richard Place, Stanley Shapiro, Tyrone Tillery

Adjunct Faculty

Roger Van Bolt

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 thirty-six credits, of which a maximum of sixteen may be transferred from another institution. All majors must take (1) at least one survey sequence, or the equivalent, from among the following: History 110-120; 190; 204-205, (2) at least twenty-one credits in courses numbered 300 and above, and (3) at least two courses in the pre-1789 period, two in the post 1789 period; and at least one course in American and one in European history. It is desirable for majors to take also at least one course in non-western history.

Department advisers will help each student plan a program to fit his/her particular needs and background.

Recommended Cognate Courses: Among recommended cognates for history majors are courses in anthropology, economics, geography, humanities, political science and sociology. The history of philosophy, the history of art, and the history of music are also appropriate electives.

Pre-Law Program: Students who plan to apply for admission to Law School should complete many of the following courses: History 110,

120, 190; 204 and 205; or 255, and 256 and twenty-one credits in advanced courses. The following courses are strongly recommended for pre-law students: History 516, 517, 528, and 561 (see also suggested pre-law curriculum in the Liberal Arts Undergraduate curricula, page 227).

The University requirement in American government may be satisfied by the election of History 103 or History 204 and 205; or History 516 and 517.

Minor Requirements: The minimum requirement for a minor in history is eighteen credits of which at least fourteen must be from classes at the 300 level or higher.

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 understanding of the past, to place the problems of the contemporary world in historical 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 employment in government research, as foreign service officers, or in the management of archival resources and public and private historical agencies, and those who wish to study history as a means of understanding contemporary society and social issues.

Both the M.A. and the Ph.D. programs provide sufficient flexibility to meet the professional needs of these various interests at 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.; fulfillment of all requirements for the Ph.D. will usually involve four years of full-time study.

Master of Arts

Admission: 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 783 (Methods and Research in History) during the first year in the program.

Candidacy must be established and an official *Plan of Work* filed with the department by the time twelve credits have been earned.

Degree Requirements: A total of thirty-five credits is required for the Master's degree in history. These credits may be earned either under *Plan A* or *Plan B*. Under *Plan A* the student must complete

twenty-seven credits in graduate course work, of which at least twenty-two must be taken in history, and write an eight credit thesis. Under *Plan B* the student must complete thirty-two credits in graduate course work, including at least twenty-seven credits in history, and write a three credit essay. Regardless of which *Plan* the student chooses to follow, he or she must (1) complete course work in two fields of history, e.g., U.S., Modern Europe, Medieval, Ancient, etc., (2) earn a minimum of nine credits in courses numbered 700 or above, at least three of which must be in seminars, and (3) pass a final oral examination on the thesis or essay and graduate course work.

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

Admission: Applicants for the Ph.D. program should apply to the University Graduate Admissions Office. In addition to having completed a B.A. degree at an accredited college or university, applicants must supply copies of all appropriate transcripts, at least three letters of recommendation, a statement of the applicant's goals and career objectives, and a sample of his or her scholarly papers. Furthermore, applicants must have taken the Aptitude and Advanced sections of the Graduate Record Examination and made their scores available to the Admissions Office. After careful screening the Department will admit a limited number of highly qualified students to the doctoral program. Those admitted will be considered for graduate assistantships. The deadline for applications is March 1 and admission is always to the fall semester.

Degree Requirements: The student should consult the University regulations governing study for the Doctor of Philosophy degree. 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 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 mastery of that language or by substitution for the second language certain specific auxiliary skills, such as statistics.

Upon entering the program, students will also be expected to select, in consultation with the Department's director of graduate studies, a faculty member who will serve as the student's adviser, both in general study and with respect to his or her dissertation. In consultation with the adviser, the student will then prepare a *Plan of Work* listing the courses that will prepare him/her in four fields of history (including a field in which the dissertation will be written), and a related cognate field outside the Department. The fields in which the Department of History offers work on the graduate level are: ancient history; medieval and Byzantine history; early modern Europe; Great Britain and the British Empire; Russia and Eastern Europe; Sub-Saharan Africa (available as examination field only; normally, dissertations are not permitted in this field); modern Europe; Latin America; labor history; urban history; American legal and constitutional history; American foreign relations; United States to 1865; United States since 1865; archival administration; women's history; Afro-American history; immigration and ethnic history. It is expected that Ph.D. students will, in consultation with their advisers and the Director of Graduate Studies, reflect some regional and chronological balance in the choice

of fields they present for examination.

Admission to Candidacy requires completion of the following requirements:

1. Demonstrated reading knowledge of two foreign languages, or such alternative arrangement as the Director of Graduate Studies may approve in accordance with the statement on language requirements above;
2. Filing of an approved *Plan of Work* with the graduate division before the completion of forty credits;
3. Completion of departmental and graduate division residence requirements;
4. Completion of course work (not including dissertation credits) with an overall honor point average of 3.5 (4.0 equals A);
5. Satisfactory completion of written and oral qualifying examinations in four history fields. Cognate requirements will be met through satisfactory completion of course work in the cognate;
6. Submission and approval of the *Doctoral Dissertation Outline and Record of Approval* form.

Dissertation: 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 successfully completed by both the adviser and a dissertation committee. Upon completion of the dissertation, the student will be required to defend it before the Department, which may be appropriately enlarged as occasion may demand and to submit the dissertation for certification to the graduate division.

COURSES OF INSTRUCTION¹ (HIS)

- 103. History of American Political Institutions. Cr. 4**
A historical survey of the development since colonial times of American municipal, state, and national government. Special attention to federalism, separation of powers, citizenship, and the two-party system.
- 104. Europe and the World: 1945 to the Present. Cr. 3-4**
The impact of World War II; political division and economic reconstruction; the changing role of Europe in the world.
- 105. American Civilization since World War II. Cr. 3-4**
Recent American ideas, institutions and movements for social change.
- 110. The Ancient World. Cr. 3-4**
From prehistory to the break up of Mediterranean unity.
- 120. The Medieval World. Cr. 3-4**
Medieval civilization from the barbarian invasions to the Renaissance.
- 190. The World and the West: 1500-1945. Cr. 4**
The rise of the modern West and the response of the non-West from the age of Columbus to the age of Hitler: the foundations of the contemporary world.
- 195. Society and the Economic Transition. Cr. 4**
Historical survey of the interaction between technological change, socio-economic systems, and culture. Multi-disciplinary studies of hunting, agrarian, and industrial societies. Required of all freshmen in the College of Engineering.

¹ See page 633 for interpretation of numbering system, signs and abbreviations

196. The Impact of Technology. Cr. 4

Extended case studies of particular technological developments and their effects; topics will vary. Critical issues raised by contemporary technology: assessment of risks, decision-making, controls, and the social responsibility of technologists. Required of all freshmen in the College of Engineering.

200. (U S 200) Introduction to Urban Studies. (ECO 280) (GEG 200) (P S 200) (SOC 250). 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.

204. American Foundations: United States to 1877. Cr. 3-4
American experience with colonialism, revolution and nation building.

205. Modern America: United States Since 1877. Cr. 3-4
Industrialization, urbanization, and emergence of the United States as a world power.

224. History of Michigan. Cr. 3-4
Social, economic development of the state, from French explorations to the present.

240. African Civilization to 1800. Cr. 3-4
An introduction to the social, cultural, political and economic traditions of Africa; the rise of early civilizations and empires in the Nile Valley and Sudanic Africa to the extension of a global capitalist economy to Africa via the slave trade, and its social, economic, and political consequences.

241. African Civilization Since 1800. Cr. 3-4
The economic and political history of modern Africa: the founding of new states and the revitalization of old states in the nineteenth century; European imperialism; African nationalist and liberation ideologies and movements; the regaining of African independence.

250. (PCS 200) Introduction to Peace and Conflict Studies. Cr. 3
Required for the peace and conflict studies co-major. A variety of approaches to the origins, processes, and resolution or management of conflict in all human systems from the individual to the nation-state.

255. History of England to 1603. Cr. 3
Prereq: sophomore standing or above. Development of British civilization.

256. History of England and Great Britain Since 1603. Cr. 3
Prereq: sophomore standing or above. Political, social, economic, literary development.

260. Latin America to 1810. Cr. 3
European backgrounds, Amerindian and black contributions, colonial systems of government, of social organization and intellectual expression.

261. Latin America Since 1810. Cr. 3
The Republican Era, history of the Latin American nations since the wars of independence.

270. Asian Civilization to 1800. Cr. 3
East Asia from prehistory through China's classic age, creation of and changes within its enduring imperial forms; barbarian contacts, variant cultures of Korea, Japan, Southeast Asia.

271. Asian Civilization Since 1800. Cr. 3
The transformation of traditional forms in China, Korea, Japan and Southeast Asia; the Western impact, revolution, and modernization.

287. The Transformation of Western Society. Cr. 3
Structure and functioning of pre-industrial society; the impact of overseas expansion, capitalism, and the bureaucratic states; revolution

and social change in the modern West.

310. Introduction to the Philosophy and Discipline of History. Cr. 3
Philosophy of history.

312. History of the Polish Community in America. Cr. 4
The development and growth of Polish emigration to the United States from the eighteenth century to the present.

313. (CBS 243) History of Latinos in the United States. Cr. 3
Historical development of people of Hispanic descent in the United States from the early nineteenth century. Cultural conflict, interaction of political, social and economic forces.

314. The Black Experience in America I: 1619-1865. Cr. 3
African origins of the American black; transition from freedom to slavery; status of the black under slavery.

315. The Black Experience in America II: 1865 to the Present. Cr. 3
The black in national life since emancipation.

320. Slavery, Racism, and Anti-Semitism. Cr. 3
Comparative study of slavery, racism, and anti-semitism in the Western world from ancient times to the present.

325. The Family in History. Cr. 3
Comparative survey emphasizing the transformation from traditional patterns of family life to family and kin in modern industrial society; students research their own family histories.

342. (CBS 242) History of Puerto Rico and Cuba. Cr. 3
Historical development of Puerto Rico and Cuba from the pre-Colombian period. Interaction of political, social, economic and cultural influences.

343. (CBS 241) History of Mexico. Cr. 3
Historical development of Mexico and the Mexican people from the Spanish conquest. Interaction of political, social, economic and cultural influences.

350. History of Poland. Cr. 4
Piast Poland; the Jagiellonian state; the seventeenth century crisis and the age of partition; the insurrections of the nineteenth century; Pilsudski Poland; the period of communist rule.

351. History of Romania. Cr. 3
Dacian state; the age of the principalities; Turkish domination in the age of the Phanariots; the liberation movement of the nineteenth century; Greater Romania interwar; the Socialist Republic.

377. (ENG 291) Women's Studies I: Women's Lives. Cr. 3(Max. 6)
Examination of women's writings in various forms: diary, journal, autobiography, biography, essay, interview and film.

395. Special Topics in History. Cr. 1-4(Max. 8)
Specialized and topical studies in historical events, personalities and themes. Topics to be announced in *Schedule of Classes*.

396. Topics in African History. Cr. 3
Topics to be announced in *Schedule of Classes*.

397. Topics in European History. Cr. 3
Topics to be announced in *Schedule of Classes*.

398. Topics in American History. Cr. 3
Topics to be announced in *Schedule of Classes*.

399. Topics in Detroit and Michigan History. Cr. 3
Topics to be announced in *Schedule of Classes*.

- 490. Directed Study. Cr. 2-6**
Prereq: consent of chairperson.
- 495. Honors Tutorial. Cr. 3 (Max. 9)**
- 497. Internship in Historical Museums. Cr. 3**
Prereq: consent of chairperson. Open only to majors. Offered for S and U grades only. Training in local historical museums and agencies in all aspects of museum administration and service.
- 500. The French Empire in America. (HIS 700). Cr. 3**
Descriptive analysis of the French activity in North America; contribution to the future United States and Canada; relations with the British colonies.
- 501. The Colonial Heritage in the United States to 1776. (HIS 701). Cr. 3**
Prereq: HIS 204. Origins and development of colonial American culture to the revolution.
- 502. Founding of the United States: 1776-1815. (HIS 702). Cr. 3**
Prereq: HIS 204. The emergence of a new nation by way of revolution, war, constitution-making and the experiences of the Federalist and Jeffersonian eras.
- 503. The American Republic on Trial: 1815-1861. (HIS 703). Cr. 3**
Emphasis on the political culture with special attention to immigration, the emergence of a market economy, slavery, social reform, war with Mexico, and the coming of the Civil War.
- 504. Civil War and Reconstruction: 1861-1877. (HIS 704). Cr. 3**
Analysis of political military, social and economic developments.
- 505. The Emergence of Modern America: 1877-1917. (HIS 705). Cr. 4**
Emphasis on the rise of big business, social and intellectual change, protest movements and government policies before the twentieth century.
- 506. Modern America: 1917-1945. (HIS 706). Cr. 4**
Analysis of economic and social problems, politics, and government policies.
- 507. Contemporary American History: 1945 to the Present. (HIS 707). Cr. 3**
Social, political, intellectual, economic, diplomatic, and cultural trends in the United States since World War II.
- 512. Foreign Relations of the United States to 1920. (HIS 712). Cr. 3**
United States involvement in the international system from the Revolution through World War I and Versailles. Emphasis on the War of 1812 and the Mexican and Spanish-American Wars.
- 513. Foreign Relations of the United States Since 1920. (HIS 713). Cr. 3**
United States involvement in the international system from the twenties to the present. Emphasis on World War II to Vietnam and the role of the United States in the Cold War and the Third World.
- 514. The Professions in Urban and Suburban America. (HIS 714). Cr. 3**
An analysis of the historical development of business and the professions in the urban context as this development has interacted with the development of governmental structure and public policy.
- 515. American Urban History in Comparative Perspective. (HIS 715). Cr. 3**
Prereq: HIS 204, 205 or equiv. American cities in the context of commercialism, industrialism, colonialism, and nationalism, compared with other cities in the world.
- 516. Constitutional History of the United States to 1877. (HIS 716). Cr. 4**
Development of American constitutionalism from its English origins through reconstruction. Emphasis on the development of separation of powers, states' rights, federalism, the Supreme Court, and the sectional controversy.
- 517. Constitutional History of the United States Since 1877. (HIS 717). Cr. 4**
Development of American constitutionalism from the end of reconstruction to the present. Emphasis on the constitutional problems of economic regulation, administrative agencies, and modernization of the Bill of Rights, especially problems of desegregation, free speech, obscenity, and criminal justice.
- 519. History of American Social Thought. (HIS 719). Cr. 4**
Social thought and ideologies from the colonial era to the recent past, including Puritanism, the Enlightenment, Transcendentalism, Darwinism, Pragmatism, and the social sciences; emphasis on major figures and social context.
- 520. Women in American Life and Thought. (HIS 720). Cr. 3**
Role of women in the development of American society and in women's movements.
- 521. The Peopling of Modern America, 1790-1914: A History of Immigration. (HIS 721). Cr. 4**
Causes and consequences of immigration; immigrants and labor; transplanted immigrant culture; immigrant institutions; relationship between immigration, industrialization, and urbanization; racism, nativism, and immigrant restriction.
- 522. The Changing Shape of Ethnic America: World War I to the Present. (HIS 722). Cr. 4**
Assimilation, cultural pluralism and the "melting pot"; persistence of ethnic cultures; class and ethnicity; internal migrations; America's recent immigrants; race and ethnic relations in the city; the "new ethnicity."
- 523. History of the South. (HIS 723). Cr. 3**
Southern culture and society from the eighteenth century to the present.
- 525. Progressivism: Reform and Politics in the Era of Roosevelt, Taft, and Wilson. (HIS 725). Cr. 3-4**
- 526. Black Protest Movements in the United States Since 1800. (HIS 726). Cr. 3**
Study of the dominant strands of black protest thought during the twentieth century.
- 527. Radical Politics in America. (HIS 727). Cr. 3**
Prereq: HIS 204 or 205 or equiv. or consent of instructor. Objectives, ideology, social background and tactics of major radical movements in the United States; emphasis on right-wing movements.
- 528. American Legal History. (HIS 728). Cr. 4**
Non-technical survey of the leading developments in American legal doctrine, legal institutions, and the legal profession from the seventeenth through the twentieth centuries. Emphasis on the symbiotic relationship between the law and social and economic change.
- 529. (ECO 549) American Labor History. Cr. 3**
Analysis of American workers and unions in the nineteenth and twentieth centuries.

530. History of Industrial Development in America. (HIS 730). Cr. 3

American industrial growth from origins to present; emphasis on transformation from agrarian to industrial society and its social and economic impact.

533. History of Greece. (HIS 733). Cr. 3

Ancient Greek culture, emphasizing political events, social and economic institutions, cultural achievements.

534. History of Rome. (HIS 734). Cr. 3

Institutional and cultural development.

535. The Hellenistic Period. (HIS 735). Cr. 3

Social and economic developments, Alexandrian science, and Hellenization of the East from Alexander the Great to the Roman conquest of the eastern Mediterranean.

536. The Early Middle Ages: 300-1000. (HIS 736). Cr. 3

Interaction of Roman, Christian and barbarian elements in the emergence of Europe as a cultural entity between the fourth and tenth centuries.

537. The High Middle Ages: 1000-1300. (HIS 737). Cr. 3

Economic, social and cultural developments that transformed Western European civilization during the eleventh, twelfth and thirteenth centuries.

538. The Renaissance. (HIS 738). Cr. 3

Europe in an age of transition between the fourteenth century and about 1530; Italian cultural and intellectual developments within a social and political context.

539. Europe in the Age of Reformation. (HIS 739). Cr. 3

Protestant and Catholic reformation seen in the context of social, economic, and political conditions of the sixteenth and seventeenth centuries.

540. Europe Under the Old Regime: 1660-1789. (HIS 740). Cr. 3

Analysis of monarchical institutions and society; examination of the economic, social and intellectual changes that foreshadowed the age of revolution.

541. The French Revolution and Napoleon. (HIS 741). Cr. 3

The dramatic changes of the late eighteenth and early nineteenth century that altered the course of French and European development and laid the basis for political modernization.

542. Modern France. (HIS 742). Cr. 3

The struggle between old and new political forces, the impact of industrialization, the search for freedom with order, the effect of total war, problems of decolonization and European integration.

543. Europe in the Nineteenth Century. (HIS 743). Cr. 3

The emergence of opposition to new political ideologies, economic and social transformation, the growth of state power, the expansion of European influence in the world, and international rivalry.

544. Twentieth Century Europe. (HIS 744). Cr. 3

Total war and disillusionment, attempts to restore stability and security, totalitarianism as an answer, more war and reconstruction, a divided Europe, the search for Europe's place in the world.

545. European Intellectual History: Seventeenth and Eighteenth Centuries. (HIS 745). Cr. 3

Study of the major western thinkers in the seventeenth and eighteenth centuries in their political, economic, and social context.

546. European Intellectual History: Nineteenth and Twentieth Centuries. (HIS 746). Cr. 3

The major thinkers, ideas, and ideologies in modern European society against the background of modernization. Romanticism, positivism, Marxism, existentialism, and the new forms of consciousness in the twentieth century.

547. Modern Germany. (HIS 747). Cr. 3

The history of modern Germany against the background of its tradition and culture. Concentration on the Prussian-Austrian conflict, the emergence of German intellectual life, unification and modernization, and the crises and wars of the twentieth century.

548. Nazi Germany. (HIS 748). Cr. 3

Hitler and Nazi Germany. Topics include: impact of World War I, the Weimar Republic, the growth of the Nazi party, the seizure of power, internal and foreign policies, and the war experience.

549. Russian History through the Revolution. (HIS 749). Cr. 3

Development and transformation of state power, with particular attention to those economic and social elements peculiar to Russia.

550. The Soviet Union. (HIS 750). Cr. 3

Bolshevik seizure of power, collectivization of agriculture and forced-draft industrialization, Nazi German invasion, Khrushchev and deStalinization, predominance of the new middle class, nationality problems, problems of detente.

551. History of Eastern Europe. (HIS 751). Cr. 4

Geographic inaccessibility, multi-ethnicity, Ottoman, Hapsburg and Romanov heritages, the liberation struggle; Nazi and Soviet domination as an explanation of contemporary developments in the area between the Germans, the Russians and the Turks.

555. Tudor and Stuart England. (HIS 755). Cr. 3

Social, political, and economic forces apparent when England emerged as a modern nation-state.

556. Eighteenth Century Britain. (HIS 756). Cr. 3

Political, social, economic developments in the Hanoverian era.

557. Modern Britain: 1815-1900. (HIS 757). Cr. 3

Political, social, economic, intellectual history of Great Britain in the nineteenth century.

558. Modern Britain Since 1900. (HIS 758). Cr. 3

Political, social, economic, intellectual history in the twentieth century.

559. Byzantine History I: 284-867. (HIS 759). Cr. 3

From Diocletian and Constantine I to the Macedonian Dynasty.

560. Byzantine History II: 867-1453. (HIS 760). Cr. 3

From the Macedonian Dynasty to the fall of Constantinople.

561. English Constitutional History. (HIS 761). Cr. 3

Crown and community in the growth of parliament and the role of parliament in a changing state; the common law in theory and practice: essential procedures and the substantive law of real property.

562. The Rise of the European Working Class: 1750-1850. (HIS 762). Cr. 3

The impact of capitalism on peasant society; the transformation of handicraft industry; the emergence of the factory proletariat; class conflict and the working class movement in Europe's revolutionary age.

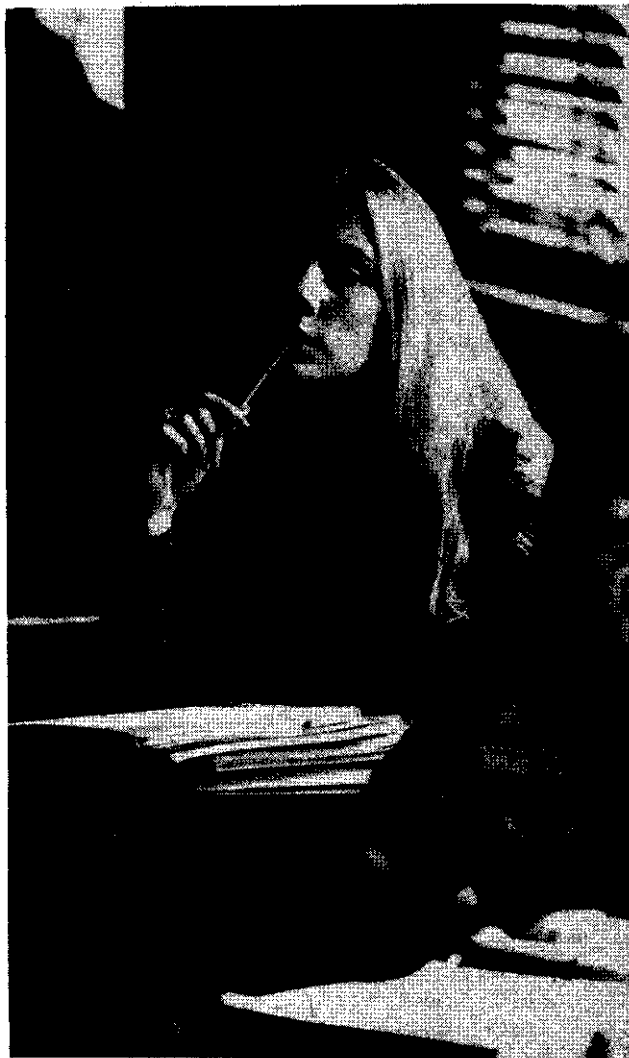
563. Socialism and the European Labor Movement. (HIS 763). Cr. 3

Comparative labor history from the age of Marx to the present; Utopian socialism, Marxism, anarchism, syndicalism, and communism; labor, fascism and the Spanish Civil War; contemporary trends.

- 564. European Economic History. (HIS 764). Cr. 3**
Development of the European economies from the eighteenth century to the present. The Industrial Revolution and its consequences.
- 565. Technology in Western Civilization. (HIS 765). Cr. 3**
Development of technology since the Renaissance and its impact on Western society and culture. Technological developments in manufacturing, transportation, communication, warfare.
- 571. History of Great Eastern Religions. (HIS 771). Cr. 3**
Development and basic teachings of Hinduism, Buddhism, Confucianism.
- 572. History of Great Western Religions. (HIS 772). Cr. 3**
Development and basic teachings of Judaism, Christianity, and the modern secular religions.
- 573. The History of West Africa. (HIS 773). Cr. 3**
Prereq: consent of instructor. West African states; Islam and socio-political change; the termination of the Atlantic slave trade; European conquest; West African resistance and the Colonial experience; nationalism and independence.
- 574. History of China: Origins to the Seventeenth Century. (HIS 774). Cr. 3**
Cultural origins; the nature of Chinese society; the Confucian pattern; alien rule and dynastic cycles; the political tradition; bureaucracy, law, and humanism; Chinese imperialism.
- 575. History of China: Manchu Empire to Mao's China. (HIS 775). Cr. 3**
European versus Chinese expansion; from tribute system to treaty system. The revolutionary process: rebellion and restoration; reform and revolution. Kuomintang aspiration, achievement and failure. China versus imperial powers. The rise and success of the Communist movement.
- 576. History of Japan to 1600. (HIS 776). Cr. 3**
Land and people; prehistory and protohistory; the adoption of the Chinese pattern; the growth of a native culture; development of a feudal system; re-establishment of national unity.
- 577. History of Japan Since 1600. (HIS 777). Cr. 3**
Signs of change behind the feudal facade; creation of a modern state; empire and democracy; militarism, war, and occupation, recovery and renewed modernization.
- 578. Comparative History: Twentieth Century Europe and the United States. (HIS 778). Cr. 3**
A comparison of the United States, England, France, and West Germany in terms of social, economic, political and cultural similarities and differences.
- 579. Cities and Empires: European, Muslim, Chinese, and Russian. (HIS 779). Cr. 3**
A comparative analysis of the way urban patterns link to the political, economic, and cultural characteristics of empires.
- 580. Cities of the Advanced Industrial Countries and the Developing World. (HIS 780). Cr. 3**
A comparative analysis of the impact of cities on major political and economic changes.
- 595. Honors Thesis Research and Direction. Cr. 3(Max. 9)**
- 600. Studies in Comparative History. Cr. 2-3**
Topics to be announced in *Schedule of Classes*.
- 601. Studies in American History. Cr. 2-3 (Max. 9)**
Topics to be announced in *Schedule of Classes*.
- 602. Studies in European History. Cr. 2-3 (Max. 9)**
Topics to be announced in *Schedule of Classes*.
- 603. Studies in African History. Cr. 2-3**
Topics to be announced in *Schedule of Classes*.
- 604. Studies in Latin American History. Cr. 2-3**
Topics to be announced in *Schedule of Classes*.
- 605. Studies in Asian History. Cr. 2-3**
Topics to be announced in *Schedule of Classes*.
- 700. (HIS 500) Readings in the French Empire in America. Cr. 3**
- 701. (HIS 501) Readings in the Colonial Heritage of the United States to 1776. Cr. 3**
- 702. (HIS 502) Readings in the Founding of the United States: 1776-1815. Cr. 3**
- 703. (HIS 503) Readings in The American Republic on Trial: 1815-1861. Cr. 3**
- 704. (HIS 504) Readings in the Civil War and Reconstruction: 1861-1877. Cr. 3**
- 705. (HIS 505) Readings in the Emergence of Modern America: 1877-1917. Cr. 4**
- 706. (HIS 506) Readings in Modern America: 1917-1945. Cr. 4**
- 707. (HIS 507) Readings in Contemporary American History: 1945 to the Present. Cr. 3**
- 712. (HIS 512) Readings in Foreign Relations of the United States to 1920. Cr. 3**
- 713. (HIS 513) Readings in Foreign Relations of the United States Since 1920. Cr. 3**
- 714. (HIS 514) Readings in the Professions in Urban and Suburban America. Cr. 3**
- 715. (HIS 515) Readings in American Urban History in Comparative Perspective. Cr. 3**
- 716. (HIS 516) Readings in the Constitutional History of the United States to 1877. Cr. 4**
- 717. (HIS 517) Readings in the Constitutional History of the United States Since 1877. Cr. 4**
- 719. (HIS 519) Readings in History of American Social Thought. Cr. 4**
- 720. (HIS 520) Readings in Women in American Life and Thought. Cr. 3**
- 721. (HIS 521) Readings in the Peopling of Modern America, 1790-1914: A History of Immigration. Cr. 4**
- 722. (HIS 522) Readings in the Changing Shape of Ethnic America: World War I to the Present. Cr. 4**
- 723. (HIS 523) Readings in the History of the South. Cr. 3**
- 725. (HIS 525) Readings in Progressivism: Reform and Politics in the Era of Roosevelt, Taft and Wilson. Cr. 3-4**
- 726. (HIS 526) Readings in Black Protest Movements in the United States Since 1800. Cr. 3**

727. (HIS 527) Readings in Radical Politics in America. Cr. 3
728. (HIS 528) Readings in American Legal History. Cr. 4
729. (ECO 549) Readings in American Labor History. (HIS 529). Cr. 3
730. (HIS 530) Readings in the History of Industrial Development in America. Cr. 3
733. (HIS 533) Readings in the History of Greece. Cr. 3
734. (HIS 534) Readings in the History of Rome. Cr. 3
735. (HIS 535) Readings in the Hellenistic Period. Cr. 3
736. (HIS 536) Readings in the Early Middle Ages: 300-1000. Cr. 3
737. (HIS 537) Readings in the High Middle Ages: 1000-1300. Cr. 3
738. (HIS 538) Readings in the Renaissance. Cr. 3
739. (HIS 539) Readings in Europe in the Age of Reformation. Cr. 3
740. (HIS 540) Readings in Europe Under the Old Regime: 1660-1789. Cr. 3
741. (HIS 541) Readings in the French Revolution and Napoleon. Cr. 3
742. (HIS 542) Readings in Modern France. Cr. 3
743. (HIS 543) Readings in Europe in the Nineteenth Century. Cr. 3
744. (HIS 544) Readings in Twentieth Century Europe. Cr. 3
745. (HIS 545) Readings in European Intellectual History: Seventeenth and Eighteenth Centuries. Cr. 3
746. (HIS 546) Readings in European Intellectual History: Nineteenth and Twentieth Centuries. Cr. 3
747. (HIS 547) Readings in Modern Germany. Cr. 3
748. (HIS 548) Readings in Nazi Germany. Cr. 3
749. (HIS 549) Readings in Russian History through the Revolution. Cr. 3
750. (HIS 550) Readings in the Soviet Union. Cr. 3
751. (HIS 551) Readings in the History of Eastern Europe. Cr. 4
755. (HIS 555) Readings in Tudor and Stuart England. Cr. 3
756. (HIS 556) Readings in Eighteenth Century Britain. Cr. 3
757. (HIS 557) Readings in Modern Britain: 1815-1900. Cr. 3
758. (HIS 558) Readings in Modern Britain Since 1900. Cr. 3
759. (HIS 559) Readings in Byzantine History I: 284-867. Cr. 3
760. (HIS 560) Readings in Byzantine History II: 867-1453. Cr. 3
761. (HIS 561) Readings in English Constitutional History. Cr. 3
762. (HIS 562) Readings in the Rise of the European Working Class: 1750-1850. Cr. 3
763. (HIS 563) Readings in Socialism and the European Labor Movement. Cr. 3
764. (HIS 564) Readings in European Economic History. Cr. 3
765. (HIS 565) Readings in Technology in Western Civilization. Cr. 3
769. The Administration of Historical Museums. Cr. 3
Introduction to the nature of historical museums.
771. (HIS 571) Readings in the History of the Great Eastern Religions. Cr. 3
772. (HIS 572) Readings in the History of the Great Western Religions. Cr. 3
773. (HIS 573) Readings in the History of West Africa. Cr. 3
774. (HIS 574) Readings in the History of China: Origins to the Seventeenth Century. Cr. 3
775. (HIS 575) Readings in the History of China: Manchu Empire to Mao's China. Cr. 3
776. (HIS 576) Readings in the History of Japan to 1600. Cr. 3
777. (HIS 577) Readings in the History of Japan Since 1600. Cr. 3
778. (HIS 578) Readings in Comparative History: Twentieth Century Europe and the United States. Cr. 3
779. (HIS 579) Readings in Cities and Empires: European, Muslim, Chinese and Russian. Cr. 3
780. (HIS 580) Readings in Cities of the Advanced Industrial Countries and the Developing World. Cr. 3
781. Introduction to Archival and Library Conservation. (L S 775). Cr. 3
Prereq: written consent of instructor and advanced standing in master's program. Basic course in the fundamentals of archival and library conservation problems and methods essential for effective preservation management of paper and associated materials.
782. Principles and Practices of Archival and Library Conservation. (L S 776). Cr. 3
Prereq: HIS 781 and consent of instructor. Advanced course in library and archival conservation providing theory and practice of basic laboratory preservation and restoration treatment.
783. Methods and Research in History. Cr. 3
Required of all M.A. candidates. Methods and tools of research and documentation. Use of aids and guides.
784. Introduction to Archival Methods I. (L S 771). Cr. 3
Basic training in archival methods.
785. Introduction to Archival Methods II. (L S 772). Cr. 3
Continuation of HIS 784.
786. Oral History: A Methodology for Research. (ANT 636) (L S 777). Cr. 3
Techniques of gathering data from individuals for use in research, classroom teaching, in historical, cultural or other contexts.
788. Administration of Historical Agencies. Cr. 3
The operation of public and private historical agencies, archives and museums. Determination of agency priorities, problems of staffing and finance, governmental regulations, community relations, and professional ethics.

- 789. Conservation and Administration of Photograph Collections.** (L S 773). Cr. 3
Basic course in the fundamentals of photographic conservation; procedures for the organization and control of photographic collections used for research and historical documentation in archives, libraries, historical agencies and museums.
- 790. Directed Study.** Cr. 1-3 (Max. 6)
Prereq: written consent of adviser and graduate officer.
- 798. Internship in Historical Administration.** Cr. 3-12
Prereq: HIS 769, 788; consent of program coordinator. Offered for S and U grades only.
- 799. Master's Essay Direction.** Cr. 3
- 800. Pro-Seminar: Advanced Readings.** Cr. 3
Comprehensive exploration of the literature of special topics within broad historical fields.
- 801. Seminar in Early American History.** Cr. 3
- 802. Seminar in Nineteenth Century American History.** Cr. 3
- 803. Seminar in Modern American History.** Cr. 3
- 804. Seminar in the History of the Foreign Relations of the United States.** Cr. 3
- 805. Seminar in the Constitutional and Legal History of the United States.** Cr. 3
- 806. Seminar in American Labor History.** Cr. 3(Max. 6)
- 807. Seminar in the History of Detroit and Michigan.** Cr. 3
- 810. Seminar in the History of Industrial Development in America.** Cr. 3
- 813. Seminar in the Historical Context of the Law.** Cr. 3
- 814. Seminar in Comparative Urban History.** Cr. 3
Themes to be chosen by the instructor in consultation with seminar students. Cities studied may be located in any major part of the world, including the United States.
- 816. Seminar in Comparative Labor History.** Cr. 3
- 818. Seminar in Immigration History.** Cr. 3
- 820. Seminar in Ancient History.** Cr. 3
- 821. Seminar in Medieval History.** Cr. 3
Prereq: HIS 536 or 537 or consent of instructor.
- 822. Seminar in Byzantine History.** Cr. 3
Social, economic, political and religious problems related to Byzantine history from the fourth to the fifteenth centuries A.D.
- 823. Seminar in Renaissance and Reformation History.** Cr. 3
- 824. Seminar in Modern European History.** Cr. 3
- 825. Seminar in British History.** Cr. 3
- 826. Seminar in French History.** Cr. 3
- 827. Seminar in Modern German History.** Cr. 3
- 828. Seminar in Russian and Soviet History.** Cr. 3
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.
- 829. Seminar in East European History.** Cr. 3
Problems in the history of Poland, Czechoslovakia, Hungary, Romania, Yugoslavia, Bulgaria, Albania and Greece since 1918.
- 830. Seminar in European Intellectual History.** Cr. 3
- 840. Seminar in African History.** Cr. 3
- 850. Seminar in Latin American History.** Cr. 3
- 860. Seminar in Asian History.** Cr. 3
- 899. Master's Thesis Research and Direction.** Cr. 1-8(Max. 8)
- 999. Doctoral Dissertation Research and Direction.** Cr. 1-16(30 req.)
Prereq: consent of doctoral adviser. Open only to Ph.D. candidates. Offered for S and U grades only. Register in multiples of three credits or as approved by graduate adviser and graduate dean.



HONORS PROGRAM

Office: 16.1 Library Court

Director: William Stine

See page 219 for a general description of the program.

A candidate for a degree with College Honors will pursue a course of studies in consultation with a faculty honors adviser which will include the core curriculum of the Liberal Arts Honors Program. This core curriculum consists of: (1) English 105 and English 205 (or their equivalent); (2) two semesters of Honors 210; (3) satisfactory completion of the study of one foreign language through the level of the fourth course offered; (4) one of the following sequences of courses elected on the basis of the student's interest: (a) two semesters of mathematics (MAT 125, 185) especially designed for non-science and non-mathematics students, and a laboratory course in physics demonstrating the relationship between technology and basic science, (Honors students electing this sequence will be required to satisfactorily complete at least one additional laboratory course to fulfill the College's Natural Science Group Requirement.); or (b) Mathematics 201, 221 and 501; or (c) Mathematics 201, 202, 203, 204 and 570 (or a departmental course in probability and statistics); and (5) an interdisciplinary seminar offered by the Honors Program to be taken in the student's senior year.

Honors Courses

	<i>credits</i>
CHM 131 – Chemical Principles and Analysis I.....	5
CHM 132 – Chemical Principles and Analysis II.....	5
CHM 231 – Organic Structure and Reactions.....	5
CHM 232 – Organic-Inorganic Synthesis.....	5
ENG 105 – Freshman Honors: English I.....	4
ENG 205 – Freshman Honors: English II.....	4
ENG 299 – Sophomore Honors Colloquium.....	3
HUM 220 – Sophomore Honors Colloquium.....	4
PHI 102 – Honors Introduction to Philosophy.....	4
PHI 186 – Honors Symbolic Logic.....	4

Courses with Honors Sections

	<i>credits</i>
A H 100 – Elements of Art.....	3
BIO 101 – Basic Biology I.....	4
BIO 102 – Basic Biology II.....	4
BIO 220 – Introductory Microbiology.....	3
CLA 200 – Greek Mythology.....	3-4
CLA 220 – Introduction to Greek Tragedy.....	3-4
CLA 240 – Heroic Poetry: Homer and Vergil.....	3
ECO 101 – Principles of Macroeconomics.....	4
ECO 102 – Principles of Microeconomics.....	4
GEL 101 – Geology: The Science of the Earth.....	4
HIS 204 – American Foundations: United States to 1877.....	3-4
HIS 205 – Modern America: United States Since 1877.....	3-4
MAT 201 – Calculus I.....	4
MAT 202 – Calculus II.....	4
MAT 203 – Calculus III.....	4
MAT 204 – Calculus IV.....	4
P S 101 – American Government.....	4
P S 251 – Introduction to Political Ideologies.....	4
PSY 101 – Introductory Psychology.....	4
PSY 260 – The Psychology of Social Behavior.....	4
PSY 331 – Abnormal Psychology.....	4

SPB 200 – Effective Speech..... 3

Complete information regarding the honors sections and courses may be found under the appropriate departmental headings in this bulletin.

COURSES OF INSTRUCTION¹ (HON)

201. Contemporary Issues. Cr. 1(Max. 6)

Offered for S and U grades only. 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.

210. Freshman and Sophomore Honors Reading. Cr. 2(Max. 4)

Offered for S and U grades only. Open only to students in the Liberal Arts Honors Program. Seven books representing current issues in various disciplines will be read. Group discussions of each book will be held in conjunction with an informal presentation by a faculty member or other qualified person.

420. Senior Honors Seminar. Cr. 4(Max. 12)

Prereq: senior standing. Open only to students in the Liberal Arts Honors Program or with consent of director. Topics to be announced in *Schedule of Classes*.

490. Directed Study. Cr. 2-4(Max. 16)

Prereq: written consent of director.



¹ See page 633 for interpretation of numbering system, signs and abbreviations

HUMANITIES

Office: 631 Merrick

Chairperson: Martin M. Herman

Professors

Homer F. Edwards, Jr., Bernard M. Goldman, Martin M. Herman, Chester F. Kuhn (Emeritus), Sara E. Leopold, Alexandra McCoy, Jay Vogelbaum

Associate Professors

Ernst Benjamin, Richard P. Studing, Nola H. Tutag

Assistant Professors

Ramon J. Betanzos, Marc Cogan

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 master's 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, it examines relationships among such diverse humanistic disciplines as art, music, literature, history, language and philosophy from both a theoretical and an historical perspective.

Courses are designed to serve four curricular needs:

1. Any may be taken to fulfill the Humanities Group Requirement in the College of Liberal Arts, and most will fulfill the Humanities Group Requirement in other colleges and programs.
2. Some may be taken as electives or cognates by students majoring in other departments.
3. Various combinations provide a major in Humanities.
4. Various combinations may be approved for students pursuing a master's degree.

Bachelor of Arts

General Requirements for Majors: Majors must fulfill the College Group Requirements and all other College graduation requirements. In addition, they must complete twenty-four credits of course work in Humanities and elect one of the following options:

1. satisfy the major requirements in another department; *or*
2. complete a twenty-four credit concentration in a single discipline other than Humanities; *or*
3. develop a coherent period or area study by completing a special twenty-four credit concentration in course work chosen from the offerings of appropriate departments and programs.

Students who are interested in this major should consult a Departmental Adviser for further information.

Curriculum Requirements within the Department: All majors are required to complete the following courses: Humanities 102Experiencing the Arts

Humanities 210..... Humanities and the Western Tradition I
Humanities 211..... Humanities and the Western Tradition II
Humanities 221..... Medium, Form and Meaning in the Arts
Humanities 222..... Constructs of Human Experience
Two Humanities courses at the 500 level

To insure a coherent program, one which possesses adequate breadth and depth, each major must decide, in consultation with a Departmental adviser, on an appropriate *Plan of Work*. A copy of this *Plan* must be filed with the Department Chairperson by the end of the semester in which a major is declared.

Minor in Humanities: To minor in Humanities, a student must complete HUM 102, 210, 211, 221, and 222 — a total of eighteen credits. Students with substantial experience in various humanistic disciplines may, with the consent of the Chairperson, substitute Departmental offerings at the 300 level or 500 level for one or several of these courses.

COURSES OF INSTRUCTION¹ (HUM)

101. Introduction to Art and Music in Western Civilization. Cr. 4
No credit for humanities majors. Carefully selected examples from the visual arts and music placed in appropriate contexts from antiquity to the present. Museum and listening assignments supplement the lectures.

102. Experiencing the Arts. Cr. 3-4
Developing the skills to experience (look, listen, read) such artistic media as art, music, and poetry. Considering how such skills relate to the manner in which meaning is communicated. Specific media to be announced in *Schedule of Classes*.

103. Exploring the Arts in Detroit. Cr. 4
Examination of the role played by urban institutions in creating, preserving, and transmitting humanistic concepts and the imaginative products of the human mind. Systematic survey of those institutions in metropolitan Detroit which have assumed or been assigned responsibility for communicating these ideas to succeeding generations and for providing continued access to such artifacts. A lecture-field work format assures maximum opportunity for direct access and experience.

113. Practicum in Humanities. (Fld: 1). Cr. 1(Max. 3)
Prereq. or coreq: HUM 101, 102, 103, 210, 211, 221 or 485. Attending and reviewing assigned performances and exhibitions related to HUM 101, HUM 102, HUM 210, HUM 211, and HUM 221.

210. Humanities and the Western Tradition I: Antiquity to the Renaissance. Cr. 4
Examining relationships among the arts and connections between art and ideas from antiquity to the Renaissance.

211. Humanities and the Western Tradition II: Renaissance to the Present. Cr. 4
Examining relationships among the arts and connections between art and ideas from the Renaissance to the present.

220. Sophomore Honors Colloquium. Cr. 4(Max. 8)
Prereq: sophomore standing. Open only to students in Liberal Arts Honors Program. Topics to be announced in *Schedule of Classes*.

¹ See page 633 for interpretation of numbering system, signs and abbreviations

- 221. Medium, Form and Meaning in the Arts. Cr. 3**
Major works of poetry, drama, art and music serve to demonstrate how medium, form, meaning and message act in concert.
- 222. Constructs of Human Experience: Histories, Novels, Philosophies. Cr. 3**
Examination of texts selected from the major categories of prose writing: history, narrative fiction and philosophy. Critical exploration and comparison of these categories as a means to fuller understanding.
- 250. Images of Labor in the Arts and Literature. (LBS 250). Cr. 4**
Examining the diverse images of the labor movement presented in the popular arts (films, songs, stories, and graphics) and exploring the contrasting perspectives which shape these images.
- 301. The Persistence of Tradition. Cr. 3**
Studies in myth and mythopoeic thought. Myth as artistic and cultural symbol of perennial human concerns.
- 302. Continuity and Change. Cr. 3**
Considering how the reformulation of persistent human problems relates to historical change. Showing how solutions proposed by writers, artists, composers and philosophers combine conventional wisdom with leaps of the Imagination.
- 303. Music - Theatre - Cinema: Imitation, Adaptation, Transformation. Cr. 3**
Prereq: HUM 102 or 221 or equiv. Examining cycles of thematically related works for the purpose of studying the process of adaptation as it takes place through time and across artistic media.
- 304. Language, Logic and Thought. Cr. 3**
Prereq: HUM 222 or equiv. Rhetorical strategies used in literature, history and philosophy. Influential texts, ancient and modern, studied intensively; historical contexts and philosophical foundations considered.
- 390. Directed Study. Cr. 1-3(Max. 3)**
Prereq: written consent of chairperson. Open primarily to junior and senior Humanities majors. Advanced study in a particular area of the humanities.
- 397. Seminar for Juniors. Cr. 3(Max. 6)**
Prereq: written consent of instructor. May be repeated with consent of chairperson. Topics to be announced in *Schedule of Classes*.
- 485. Humanities and Education. Cr. 4**
Study of major traditions in Western art, literature and philosophy as they relate to education.
- 497. Seminar for Seniors. Cr. 3**
Prereq: written consent of instructor. Topics to be announced in *Schedule of Classes*.
- 510. Philosophical Bases of Critical Theory. Cr. 3**
Prereq: HUM 102 or 221 and 222 or equiv. Ancient and modern philosophical and critical texts; the relation of philosophical principles to the questions and methods of practical criticism. Construction of a pluralistic approach to illuminate distinct aspects of humanistic experience.
- 533. Western Culture in the Classical Period. Cr. 3**
Prereq: HUM 210 and 211 or equiv. Stylistic relationships among the arts; consideration of connections between the arts and such other forms of knowledge or experience as history, philosophy, religion, science.
- 535. Western Culture in the Middle Ages. Cr. 3**
Prereq: HUM 210 and 211 or equiv. Stylistic relationships among the arts; consideration of connections between the arts and such other forms of knowledge or experience as history, philosophy, religion and science.
- 536. Western Culture in the Renaissance. Cr. 3**
Prereq: HUM 210 and 211 or equiv. Stylistic relationships among the arts; consideration of connections between the arts and such other forms of knowledge or experience as history, philosophy, religion, science.
- 537. Western Culture in the Baroque Period. Cr. 3**
Prereq: HUM 210, 211 or equiv. For the period 1600-1750: stylistic relationships among the arts; consideration of connections between the arts and such other forms of knowledge or experience as history, philosophy, religion, science.
- 538. Western Culture in the Romantic Period. Cr. 3**
Prereq: HUM 210 and 211 or equiv. Stylistic relationships among the arts; consideration of connections between the arts and such other forms of knowledge or experience as history, philosophy, religion, science.
- 539. Western Culture from 1870 to the Present. Cr. 3**
Prereq: HUM 210 and 211 or equiv. Stylistic relationships among the arts; consideration of connections between the arts and such other forms of knowledge or experience as history, philosophy, religion, science.
- 575. Studies in the Arts and Ideas of American Culture I: 1770-1870. Cr. 3**
Prereq: HUM 211 and one course in American literature or American history or A S 201 or equiv. Major individuals, schools and movements in American literature, philosophy, music and the visual arts: their relationships to one another and to American history.
- 576. Studies in the Arts and Ideas of American Culture II: The Gilded Age to the Present. Cr. 3**
Prereq: HUM 211 and one course in American literature or American history or A S 201 or equiv. Approach similar to that of HUM 575.
- 585. Introductory Studies: Arts and Ideas of India. Cr. 3**
Major artistic achievements and philosophical concepts as expressed in selected examples from the visual arts, literature, music and drama of India.
- 586. Introductory Studies: Arts and Ideas of China. Cr. 3**
Major artistic achievements and philosophical concepts as expressed in selected examples from the visual arts, literature, music and drama of China.
- 587. Introductory Studies: Arts and Ideas of Japan. Cr. 3**
Major artistic achievements and philosophical concepts as expressed in selected examples from the visual arts, literature, music and drama of Japan.
- 601. Foundations of the Disciplines of the Humanities. Cr. 3**
Consideration of how philosophical principles are related to the ways in which the humanities are experienced, defined and investigated. Differing divisions of the humanistic fields compared and explored.
- 652. Interrelation of the Arts in Critical Theory. Cr. 3**
Sources and content of contemporary theories of criticism; their adequacy when applied to various arts.
- 665. Studies in Humanities. Cr. 3**
Intensive study of a specific aspect of a period, genre or theme. Topics to be announced in *Schedule of Classes*.
- 701. Bibliography and Methods for Humanities Majors. Cr. 3**
Comparative bibliographic techniques and methods in the arts and humanities; examining the range of methodological approaches

applicable to interdisciplinary studies.

789. Seminar for Graduate Majors. Cr. 3

Prereq: written consent of chairperson and instructor.

790. Directed Study. Cr. 1-4(Max. 4)

Prereq: written consent of chairperson, instructor, adviser and graduate officer.

791. Problems and Methods of Teaching Humanities in the Community College I. Cr. 3

Prereq: written consent of chairperson, instructor and adviser.

792. Student Teaching of the Humanities on the Community College Level. Cr. 3

Prereq. or coreq: HUM 791 and consent of adviser. Offered for S and U grades only.

794. Problems and Methods of Teaching Humanities in the Community College II. Cr. 3

Prereq: HUM 791. Continuation of HUM 791.

799. Master's Essay Direction. Cr. 2-3

Prereq: consent of chairperson.

899. Master's Thesis Research and Direction. Cr. 2-8(8 req.)

Prereq: consent of chairperson.



LABOR STUDIES

Office: 631 Merrick

Administrative Committee

Edward Cushman, Political Science; Mark L. Kahn, Economics; Philip P. Mason, History; Raye Hudson Rosen, Sociology; R. H. Zieger, History; Cary M. Lichtman, Psychology

Labor Studies is an interdepartmental program offering an opportunity to study the organized labor movement, using the concepts and approaches of various academic disciplines. Students completing the program will receive a Bachelor of Arts 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. It will also provide a suitable background for graduate study in this area; however, the committee recommends that students planning graduate study consult a committee member regarding graduate school requirements and consider a dual major including both labor studies and a related discipline such as economics, history, political science or sociology.

— Curriculum and Major Requirements

Each Labor Studies major must meet the general requirements of the College of Liberal Arts for the Bachelor of Arts degree as well as the following course requirements:

Core Curriculum: The following courses (twenty-one credits) are required of all majors in this program:

	<i>credits</i>
LBS 250 — Introduction to Labor Studies.....	4
LBS 470 — Senior Seminar.....	3
ECO 441 — Labor Institutions.....	4
HIS 529 — American Labor History.....	3
PSY 350 — Industrial-Organizational Psychology.....	3
SOC 563 — American Labor: Blue Collar, White Collar.....	3

Specialized and Applied Curriculum: Four courses (twelve credits) must be selected from the following lists:

Specialized Curriculum

	<i>credits</i>
ENG 255 — Literature, Language and Labor.....	3
HIS 563 — Socialism and the European Labor Movement.....	3
P S 504 — American Political Reform Movements.....	4
P S 634 — Employee Relations in the Public Sector.....	3
PSY 656 — Psychology of Union-Management Relations.....	3
PSY 554 — Motivation in the World of Work.....	3
SOC 663 — Sociology of Work and Occupations.....	3
SOC 562 — Social Aspects in Industry.....	3

Applied Curriculum

A maximum of twelve credits in the following special topics may be earned under the general title 'Applied Labor Studies' as LBS 450:

	<i>credits</i>
Collective Bargaining.....	3
Labor Education.....	3
Labor Law.....	3
Labor Problems.....	3
Industrial Health and Safety.....	3
Quality of Work Life.....	3
Technological Development and Labor Relations.....	3
Union Organization and Administration.....	3

See the coordinator concerning courses in the applied curriculum which are under development and may be arranged through other colleges. 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

The following courses are suggested electives in the Labor Studies program; however, this list is not restrictive. In consultation with the adviser, a student may elect others.

	<i>credits</i>
BIO 103 — Man and the Environment.....	3
ENG 301 — Techniques of Expository Writing.....	3
ECO 101 — Principles of Macroeconomics.....	3
ECO 102 — Principles of Microeconomics.....	3
HIS 562 — The Rise of the European Working Class.....	3
MGT 574 — Collective Bargaining.....	3
MGT 674 — Administering the Labor Agreement.....	3
P S 231 — Introduction to Public Administration.....	4
P S 302 — Political Parties and Elections.....	4
P S 303 — Interest Groups in the Political Process.....	4
P S 304 — Legislative Process.....	4
SOC 546 — Sex Roles: Being Men and Women.....	3
SOC 557 — Race Relations in Urban Society.....	3

COURSES OF INSTRUCTION¹ (LBS)

250. (HUM 250) Introduction to Labor Studies. Cr. 4

Examination of the diverse images of labor in the popular arts (films, songs, stories and graphics) and exploration of the contrasting perspectives which shape these images.

450. Applied Labor Studies. Cr. 3(Max. 12)

Prereq: consent of instructor. Practical training in various labor relations specialties. Consult coordinator for specific topic.

470. Senior Seminar. Cr. 3(Max. 6)

Prereq: consent of instructor. Research, reflection, discussion and analysis of labor relations practice.

490. Directed Study. Cr. 3-6(Max. 6)

Prereq: consent of coordinator. Supervised reading and research.

LINGUISTICS

Office: 137 Manoogian

Director: Jane H. Hill

Participating Faculty

Richard B. Angell, Professor, Philosophy
 Lynn Bliss, Associate Professor, Speech Communication
 Gregory Carlson, Assistant Professor, English
 Tatjana Cizevska, Professor, Slavic Languages
 Walter Edwards, Assistant Professor, English
 Helen Hause, Associate Professor, Anthropology
 Alice Horning, Assistant Professor, English
 Sara E. Leopold, Professor, Department of Humanities
 Sol Rossman, Associate Professor, Romance and Germanic Languages
 Aleya Rouchdy, Associate Professor, Near Eastern Languages
 Gary Scavnicky, Associate Professor, Romance and Germanic Languages
 Geneva Smitherman, Professor, Speech Communication
 Michael Tanenhaus, Assistant Professor, Psychology

Linguistics is an interdepartmental program that offers the student an opportunity to concentrate on the study of the fundamental nature of human language: language history and structure, linguistic theory, the application of linguistics, and the relationship between linguistics and other disciplines. The program is administered by an advisory committee composed of linguists from the Departments of Anthropology, English, Philosophy, Psychology, Near Eastern Languages, Romance and Germanic Languages, Slavic Languages, and Speech Communication.

Bachelor of Arts

The bachelor of arts program consists of a core of linguistics courses which all majors must complete. In addition to the core courses, the student must follow one of the following tracks: A. Linguistics and a Language; B. Formal Linguistics: Syntax and Semantics; C. Psycholinguistics; D. Sociolinguistics; E. Individualized Program.

A student must complete a minimum of twenty-eight credits in core and track courses to satisfy the major requirements.

Core Courses

	<i>credits</i>
LIN 570 — Introduction to English Linguistics.....	3
LIN 529 — Structure of Language: Phonology.....	3
LIN 530 — Structure of Language: Grammar.....	3

Tracks

A. Linguistics and a Language

The student must complete fifteen credits in advanced language skills or in linguistics of the chosen language beyond the basic courses. In addition, the student must elect an appropriate course in historical linguistics and LIN 572 (Advanced Syntax). The fifteen credits in advanced language skills should be planned in consultation with the adviser.

B. Formal Linguistics: Syntax and Semantics

The student must complete the following courses:

	<i>credits</i>
PHI 185 (or 186) — Symbolic Logic.....	4

¹ See page 633 for interpretation of numbering system, signs and abbreviations

LIN 572 – Contemporary Development of Language: Advanced Syntax	3
PHI 257 (or 557) – Philosophy of Language	3 or 4
ENG 572 – Contemporary Development of Language: Semantics	3

Additional Courses:

LIN 571 – Historical Development of the English Language	3
ENG 576 – American Dialects	3
CSC 652 – Automata Theory	3
PHI 520 – Modal Logic	4
PHI 535 – Logical Systems I	4
PHI 539 – Logical Systems II	4
PHI 563 – Twentieth Century Analytic Philosophy I	4
PHI 564 – Twentieth Century Analytic Philosophy II	4
PSY 671 – Psycholinguistics	3

C. Psycholinguistics

The student must complete the following courses:

PSY 671 – Psycholinguistics	3
PSY 209 – Cognitive Processes	4

Additional Courses:

PSY 609 – Higher Mental Processes	3
PSY 410 – Statistical Methods in Psychology	4
PSY 490 – Directed Study and Research	2-4 (Max. 9)
PSY 240 – Developmental Psychology	4
LIN 531 – Language and Culture	3
LIN 532 – Language and Society	3
SPC 501 – Psychology of Human Communications	3
SPD 508 – Phonetics	3

D. Sociolinguistics

The student must complete the following courses:

LIN 531 – Language and Culture	3
LIN 532 – Language and Society	3

Additional Courses:

SPC 504 – Communication in the Black Community	4
SOC 460 – Social Psychology	3
SOC 602 – Social Statistics	3
PSY 567 – Psychology of Interpersonal Communications	3
PSY 671 – Psycholinguistics	3
ANT 520 – Social Anthropology	3
ENG 560 – Studies in Folklore	3
LIN 572 – Contemporary Development of Language: Advanced Syntax	3

E. Individualized Program

Under exceptional circumstances a student may design a track to meet an individualized program. Plans of work for special tracks must be approved by the Committee for the Linguistics Program before the student has completed a maximum of twelve credits in the major.

Master of Arts in Linguistics

Plan B: Thirty 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 at least one year of a foreign language.

Candidacy must be established by the time twelve 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,

sociolinguistics, or the study of a particular language. Programs are to be planned in consultation with an adviser and are to be approved by the Linguistics Committee. An essay and final written and oral examination are required.

The following courses must be taken if the student has not completed them as a undergraduate:

	<i>credits</i>
LIN 529 – The Structure of Language: Phonology	3
LIN 530 – The Structure of Language: Grammar	3

In addition, nine credits must be elected from the following:

LIN 531 – Language and Culture	3
LIN 532 – Language and Society	3
LIN 710 – Studies in Linguistics	3-12 (Max. 12)
LIN 761 – Seminar in Problems and Concepts in Linguistics	3 (Max. 9)

Courses of Instruction: In addition to the following, courses with linguistic content may be found in the Departments of Anthropology, English, Mathematics, Near Eastern Languages, Philosophy, Psychology, Romance and Germanic Languages, Slavic Languages, and Speech Communication.

COURSES OF INSTRUCTION¹ (LIN)

504. (SPC 504) Communication in the Black Community. (S E 537). Cr. 3

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.

529. (ANT 529) The Structure of Language: Phonology. Cr. 3
Prereq: consent of instructor. The sound systems of a variety of human languages compared and contrasted in an introduction to the diversity and similarities in human sound systems. Theories of the nature of sound systems and methods of analysis in phonology and morphophonology will be presented.

530. (ANT 530) The Structure of Language: Grammar. Cr. 3
Prereq: ANT 529 or consent of instructor. The theory of grammatical systems examined through analysis of sentence and word formation in a variety of human languages. Diversity and universals in grammar and theories of syntax.

531. (ANT 531) Language and Culture. Cr. 3
Prereq: ANT 210 or ANT 520 or S S 191 or SOC 201 or consent of instructor. An introduction to the structure of language and to the ways that humans use language in the construction of human worlds. Diversity of the world's languages and universal properties of language will be discussed. Theories of language change will be introduced.

532. (ANT 532) Language and Society. Cr. 3
An introduction to the functions of language in many kinds of human groups. Languages used to express social roles and statuses, caste, class, and ethnic diversity. Such aspects of language variability as "street" or vernacular languages, literary standard languages, pidgin and creole languages, and multilingualism.

570. (ENG 570) Introduction to English Linguistics. Cr. 3
Basic concepts and methods of modern linguistics and their application to the study of the English language.

571. (ENG 571) Historical Development of the English Language. Cr. 3

¹ See page 633 for interpretation of numbering system, signs and abbreviations

The development of the English language from its beginning to the present.

572. (ENG 572) Contemporary Development of Language.
Cr. 3(Max. 9)

Objective analysis of contemporary American English. Syntax, phonology, morphemics, semantics. Structural, transformational, tagmemic stratificational approaches. Topics to be announced in *Schedule of Classes*.

573. (ENG 573) Traditional Grammar. Cr. 3

Comprehensive analysis of English sentence structure and parts of speech using the terminology and descriptive approach of traditional grammar.

667. (ANT 667) Studies in Anthropological Linguistics.
Cr. 2-4(Max. 12)

Prereq: LIN 531 or 532 or consent of instructor. A selected topic in anthropological linguistics. Topics to be announced in *Schedule of Classes*.

710. (ANT 710) Studies in Linguistics. Cr. 3-12(Max. 12)

Prereq: LIN 529 and 530 or consent of instructor. Topics to be announced in *Schedule of Classes*.

718. (SPC 718) Speech, Language, and Social Relationships.
Cr. 3

Relation of speech and language patterns to social interaction. Ethnolinguistics, forms of address, social class perceptions, other topics.

761. (ANT 761) Seminar in Problems and Concepts in Linguistics.
Cr. 3(Max. 9)

Prereq: consent of instructor. Central concepts and theories. Current developments, problems and contemporary research orientations in the field. Topics to be announced in *Schedule of Classes*.

764. (ANT 764) Seminar in Problems and Concepts in Linguistic Anthropology. Cr. 3(Max. 9)

Prereq: LIN 531 or consent of instructor. Central concepts and theories. Current developments, problems and contemporary research orientations. Topics to be announced in *Schedule of Classes*.

791. (ANT 791) Directed Study in Linguistics. Cr. 1-9(Max. 9)

Prereq: written consent of adviser and 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.

799. Master's Essay Direction. Cr. 3

Prereq: consent of adviser.

MATHEMATICS

Office: 646 Mackenzie Hall

Chairperson: Bertram J. Eisenstadt

Academic Services Officer: Katherine McDonald

Professors

Gregory F. Bachelis, Albert T. Bharucha-Reid, Leon Brown, Pao-Liu Chow, Bertram J. Eisenstadt, Karl W. Folley (Emeritus), David Handel, Chorong-Shi Houh, John M. Irwin, Takashi Ito, Andre G. Laurent, D. Clarence Morrow (Emeritus), Togo Nishiura, Owen G. Owens (Emeritus), Claude L. Schochet, Bertram M. Schreiber, Tze-Chien Sun, Chia Kuei Tsao, Martin T. Wechsler, Paul Weiss (Emeritus), Clarence W. Wilkerson

Associate Professors

William M. Borgman, Jr. (Emeritus), John C. Breckenridge, Lawrence J. Brenton, Paul A. Catlin, Daniel S. Drucker, Henryk Fast, Larry A. Finkelstein, Lowell J. Hansen, David W. Jonah, Morris W. Katz, James J. Kelleher, Marc Konvisser, Richard I. Loebl, Judith Q. Longyear, Jingyal Pak, Henry H. Pixley (Emeritus), Geert C. E. Prins, Choon-Jai Rhee, Harold T. Slaby, Kai Wang, Stephen A. Williams

Assistant Professors

David E. Bindschadler, Robert R. Bruner, William S. Cohn, Daniel E. Frohardt, Jan Hrabowski, Ping Hsiao, Steven M. Kahn, Leonid Makar-Limanov, Peter Malcolmson, Jose L. Menaldi, William T. Pelletier

Lecturers

Wayne B. Hille, R. Shantaram

Adjunct Assistant Professor

Richard L. Fremon

DEGREE PROGRAMS

Bachelor of Arts—with a major in mathematics

Bachelor of Science—with a major in mathematics

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 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; they allow students to prepare themselves for

work as mathematicians and statisticians in industry and government; and they give an opportunity to all inquisitive students to learn something about modern mathematical ideas.

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.

Minor in Mathematics: requirements for a Minor in Mathematics consist of the Basic Sequence (MAT 201, 202, 203, and 204), Mathematics 507, and two additional Mathematics courses numbered 500 or above applicable to degree work in mathematics. Mathematics Service Courses may not be used to satisfy this requirement.

Basic Sequence

The sequence consists of mathematics courses 201, 202, 203, and 204. 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.

To enter the Basic Sequence a student must pass Mathematics 180 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 201 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 Examinations

Mathematics 150: Students must qualify for entry into Mathematics 150 by either (a) successfully completing Mathematics 095 with the recommendation of their instructor to enter Mathematics 150, or (b) by receiving a satisfactory score on the Mathematics 150 Qualifying Examination given during the testing period immediately preceding the semester in which they plan to enroll. The schedule of examinations appears in the *Schedule of Classes* preceding the list of offerings in mathematics. This examination will cover topics in arithmetic and first year high school algebra.

Mathematics 180 or 201: Designated minimum scores on the Mathematics Qualifying Examination must be achieved within the previous two semesters in order to (a) enroll in Mathematics 180 (except for certain students from Mathematics 095 who are recommended by their instructors) or (b) enroll directly in Mathematics 201 without first passing Mathematics 180. All transfer students, including those who have had the equivalent of Mathematics 180 at another institution, are required to take the qualifying examination before enrolling in Mathematics 201.

This examination is administered each semester. 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 semesters 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 for Mathematics 180 or 201 tests proficiency. Parts A and B of the examination are used to determine eligibility for Mathematics 180. 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 201 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 201, 501, 502, and 506. 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, except for MAT 201, are in the Service Course list.

With the exception of MAT 201, 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.

Pre-Business Administration: Mathematics 150 (or equivalent for transfer students) is required in this curriculum.

Pre-Education: The student in elementary education normally elects the sequence, Mathematics 111, 112.

Non-Technical Course in Concepts: Mathematics 300 and 310, whose descriptions will be found in the Service Course list, are 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, Business Administration and Computer Science: The following basic subjects are recommended to master's degree candidates as preparation for work in their profession; they also provide a solid background for students who intend to pursue doctoral studies after completion of the master's program:

Algebra I.....	MAT 542
Linear Programming and Operations Research.....	MAT 577, 586
Probability and Stochastic Processes.....	MAT 570, 571
Statistical Methods, Applied Time Series and Design of Experiments:	MAT 582, 583

Engineering and Physical Applications: The Mathematics Department has several sequences in applied mathematics which provide experienced engineers and scientists from industry and government the means to acquire and maintain the technical competence needed to work at the frontiers of their fields:

Applied Analysis.....	MAT 522, 523
Probability Theory and Random Processes.....	MAT 570, 571, 770, 771
Graph Theory and Combinatorial Mathematics.....	MAT 640, 641
Special Subjects	
Tensor Analysis.....	MAT 525
Differential Geometry.....	MAT 553

High School Teachers: The following courses should deepen the understanding of general concepts and techniques in algebra, geometry, probability and statistics:

Elementary Theory of Numbers.....	MAT 540
Elementary Topology of Surfaces.....	MAT 552
Topics in Mathematics for High School Teachers.....	MAT 614, 615, 616

Students who feel that they eventually would like to pursue mathematical studies beyond the level of the above sequences should make every effort to take the mathematics sequences which begin with Mathematics 560, and 542, respectively, and MAT 660. These courses will help them to understand and work with abstract concepts in advanced courses.

Statistics

Beginning students are referred to Statistics 102. For students in the social sciences who have had Mathematics 501, Mathematics 502 is recommended. Those whose work demands a good foundation in mathematical statistics are referred to Mathematics 570 and 582. Mathematics 583 and 683 are useful for students interested in applied statistics.

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, or C 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 217 and 218, 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 for option A.

All mathematics majors must plan their programs with the help of an adviser from the Mathematics Department.

— Option A

This option is for students with a strong interest in theoretical mathematics.

1. The Basic Sequence (Mathematics 201, 202, 203 and 204).
2. Advanced Calculus (MAT 507).
3. Algebra I and II (MAT 542 and 543).
4. Analysis I and II (MAT 560 and 561).
5. Probability (MAT 570).
6. One additional course chosen from (a) mathematics courses numbered 500 or above applicable to degree work in mathematics or (b) computer science courses: CSC 460 (Numerical Methods), 516 (Discrete System Simulation), 661 and 662 (Computational Algorithms). Mathematics service courses may not be used to satisfy this requirement. Students in the combined curriculum for secondary teaching should take MAT 614.
7. Completion of the Liberal Arts foreign language requirement with French, German, or Russian.

— Option B

This option is for students interested in a broad range of topics.

1. The Basic Sequence.
2. MAT 507.
3. MAT 542 or 560.
4. MAT 570.
5. Either (a) three courses chosen from mathematics courses numbered 500 or above applicable to degree work in mathematics, or (b) two mathematics courses numbered 500 or above applicable to degree work in mathematics and one of CSC 460, 516, 661, or 662. Mathematics service courses may not be used to satisfy this requirement.
6. Completion of the Liberal Arts foreign language requirement with French, German, or Russian.

— Option C

This option is available only to students in the Combined curriculum for Secondary Teaching.

1. The Basic Sequence.
2. Mathematics 560, 614, 615 and 616.
3. Mathematics 540 or 542 or 561.
4. Two additional courses selected from (a) mathematics courses numbered 500 or above applicable to degree work in mathematics, or (b) computer science courses numbered 460 or higher, except Computer Science 501 and 503. 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).

Total Credits in Major: Students may take no more than forty-six credits in mathematics and no more than forty-six credits in computer science.

Honor Point Average: For majors, the honor point average in mathematics (MAT) courses must be at least 2.0.

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 degree 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, or B if they choose.

Language Recommendations: The department recommends that its majors take at least two semesters 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 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 427). 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 419 and 420, 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 ten credit sequence constitutes a one year sequence normally beginning each fall semester; a student completing this sequence need not take Mathematics 203, 204, and 507 (twelve credits).

Only students who intend to take the complete sequence should enroll. A 3.0 or higher grade point average in Mathematics 201 and 202 is required for admittance to the sequence.

Honors Sections in the Basic Sequence: An Honors section in Mathematics 202 is taught in winter semester and one in Mathematics 204 is taught in the fall semester. A 3.0 or higher grade point 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 pages 18-30 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 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 toward this requirement. As preparation for graduate study, the Mathematics Department strongly recommends undergraduate course work along the line of option A, under Bachelor's Degree, described above.

Applicants for the program leading to the degree of Master of Arts in Applied Mathematics must have either twelve credits beyond the calculus sequence or knowledge equivalent to Mathematics 201-204, 507, 542, Computer Science 203 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.

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 233) and also in the Graduate School section (Page 18). 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. Thirty-two credits earned in accordance with Plan A, or thirty credits in accordance with Plans B or C. These plans are described below. At least twenty-four credits must be earned in course work from the Mathematics Department. Credits earned toward a thesis or essay in accordance with Plan A or Plan B may be included among these twenty-four credits.
2. Election of Mathematics 542, 543, 560 and 561, if not previously completed. Election of Mathematics 650 or 660, if not previously completed.
3. Election of at least two of the following, if not previously completed: Mathematics 522, 523, 525, 570, 571, 577, 582, 586 and Computer Science 661. These courses represent several areas of applied mathematics.
4. Election of at least one additional mathematics course numbered 600, or higher, with the exception of courses for teachers.
5. By the time twelve 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 twelve 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 eight credits with the remaining credit earned in course work.

Plan B: Completion of an essay for three 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 of the Graduate School that six credits in the major field must be in courses numbered 700 and above.

Computer Science Cognates: For students interested in computer science, suitable cognates are: Computer Science 516, 652, 661, 662, 663.

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 Mathematics 616 for 542 in satisfying requirement 2.
- b) substitute Mathematics 615 for 570 in satisfying requirement 3.
- c) add Mathematics 614 to the list of optional courses used in satisfying requirement 4.

— 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:

2(a). Election of Mathematics 542, 543, 560, 561, 570, 582 and 780, if not previously completed. Election of Mathematics 650 or 660, if not previously completed. Mathematics 760 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.

— 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 thirty-two credits is required.
- b) requirements 3 and 4 are replaced by the requirement of election of at least three courses to be determined in consultation with the director of the master's program.
- c) only Plan B (see above) is permitted.

— 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. Requirements for the degree are as follows:

1. A minimum of thirty-two credits.
2. A minimum of sixteen credits in mathematics courses not previously completed with number 507, or above (except 542, 543, 560, 561 and courses for teachers).
3. At least four additional credits in mathematics courses as outlined in (2), above, or in Computer Science 661, 662.
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 eight 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 for three 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.

Preliminary Examinations are two 2-hour written tests, covering undergraduate level material in analysis and algebra (from a sophisticated point of view). A student who is admitted to the Ph.D. program must take the Preliminary Examination within the first two scheduled examination sessions after the date of admission. Any delay in taking the examinations must be approved in advance by the Graduate Committee.

Qualifying Examinations consist of two sections, a written and an oral examination. A student must begin the written qualifying examination by the end of the third year in the Ph.D. program, and must pass all parts of the examination by the end of the fourth year in the Ph.D. program.

Written Qualifying Examinations consist of two 3-hour parts, a *major* and a *minor* area exam. The examination committee will give the student a list of topics in the students's area of specialization. These topics should both reflect the student's particular research interest and *be of sufficient breadth to cover the entire area*. The committee will also designate a minor area on which the student will be examined. The minor area is to be supportive of the major area but sufficiently

instructor. Time series models; statistical analysis in the time domain and examples; statistical analysis in the frequency domain and examples.

586. Introduction to Linear Programming. Cr. 3
Prereq: MAT 204. Theory of linear programming; methods of solving linear programming problems (simplex, dual simplex and other methods); applications of linear programming (problem formulation, computational aspects, sensitivity analysis); networks.

590. Directed Study. Cr. 1-4(Max. 8)
Prereq: undergrad., consent of adviser and written consent of chairperson; grad., consent of adviser and written consent of chairperson and graduate officer. Undergraduates who elect this course must be mathematics majors of honors caliber. Content will vary to satisfy needs of individual student.

595. Problem Solving. Cr. 1-3(Max. 6)
Prereq: consent of instructor. Problems from a specific area of mathematics. Topics to be announced in *Schedule of Classes*.

614. Topics in Mathematics for High School Teachers I. Cr. 3
Prereq: MAT 204. Only 2 credits toward graduation after MAT 556. Modern geometry; Euclidean geometry based on Hilbert's axioms; projective and affine planes; non-Euclidean geometries.

615. Topics in Mathematics for High School Teachers II. Cr. 3
Prereq: MAT 204. No credit after MAT 570; only one credit toward graduation after MAT 221. Combinatorial analysis; basic concepts and methods of probability and statistical inference.

616. Topics in Mathematics for High School Teachers III. Cr. 3
Prereq: MAT 204. No credit after MAT 542. Algebraic structure: rings, integral domains, fields, groups; applications to polynomials and theory of equations.

640. Graph Theory. Cr. 4
Prereq: MAT 542 or consent of instructor. Basic concepts of graphs and directed graphs; trees; cycles and circuits; connectivity; traversibility; planarity; colorability. Further topics from among factorization, line-graph, coverings and independence, graphs and matrices, automorphism groups, enumeration, Ramsey theory, hypergraphs, packing theory, network flows.

641. Combinatorics. Cr. 4
Prereq: MAT 542 or consent of instructor. Enumeration: the classical theory, principle of inclusion and exclusion, generating functions, the Moebius function; combinatorial designs including Latin squares, difference sets, projective geometries, Hadamard matrices, construction problems; transversal theory; Ramsey's theorem; coding theory; partial orders; lattices.

650. Topology I. Cr. 4
Prereq: MAT 561 or consent of instructor. Topological spaces and continuous functions; connectedness; compactness; product and quotient spaces; metric spaces; Urysohn's lemma; Tietze extension theorem; homotopy; covering spaces and path lifting; the fundamental group and examples; Brouwer fixed point theorem and applications.

653. Differential Geometry of Curves and Surfaces II. Cr. 3
Prereq: MAT 553 or consent of instructor. Continuation of MAT 553 with emphasis on global theory.

660. Complex Analysis. Cr. 4
Prereq: MAT 561 or consent of instructor. Complex differentiation; elementary functions; Cauchy's integral theorem; power series; Laurent expansions; singularities; residue theorem; entire and meromorphic functions; Riemann mapping theorem.

683. Design of Experiment. Cr. 3
Prereq: MAT 582. Randomized blocks; Latin and Graeco-Latin

squares; factorial designs; confounding; split plot; fractional replication; balanced incomplete blocks.

695. 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*

Graduate Courses

720. Ordinary Differential Equations II. Cr. 3
Prereq: MAT 528, 542 and 761 or consent of instructor. Existence and uniqueness of solutions; linear differential equations in the complex domain; regular and irregular singularities; boundary value problems; Green's function; linear differential equations in Banach space; topology of integral curves; limit cycles; perturbation theory; asymptotic behavior of solutions; functional differential equations.

721. Partial Differential Equations II. Cr. 3
Prereq: MAT 529 and 761 or consent of instructor. Weak and strong derivatives; Sobolev inequalities and imbeddings; Garding's inequality; existence and regularity of solutions of elliptic equations with Dirichlet boundary conditions; strongly continuous semigroups; analytic semigroups; fundamental solutions; existence, uniqueness, and regularity of solutions of evolution equations; the initial-boundary value problem for parabolic equations.

727. Topics in Applied Mathematics. Cr. 3-4(Max. 12)
Prereq: consent of instructor. Topics of special interest such as differential equations; calculus of variations; elliptic functions; orthogonal functions; numerical methods; systems and control theory. Topics to be announced in *Schedule of Classes*.

740. Advanced Algebra I. Cr. 4
Prereq: MAT 543 or consent of instructor. Permutation groups; Sylow Theorems; Jordan-Holder theorem; solvable and nilpotent groups; free groups; unique factorization domains; principal ideal domains; modules over principal ideal domains; linear transformations; Cayley-Hamilton theorem; free modules; noetherian rings; localization.

741. Advanced Algebra II. Cr. 3
Prereq: MAT 740 or consent of instructor. Field extensions; finite fields; Galois theory; classical applications of Galois theory; algebraic closure; tensor and exterior algebras; determinants; alternating, quadratic and hermitian forms.

747. Topics in Algebra. Cr. 3-4(Max. 12)
Prereq: MAT 741 or consent of instructor. Selected topics from linear algebra; homological algebra; group theory; field theory. Topics to be announced in *Schedule of Classes*.

750. Topology II. Cr. 4
Prereq: MAT 650 or consent of instructor. Smooth manifolds and maps; examples from projective spaces, from Lie groups, and from low dimensions; local coordinates; partitions of unity; tangent vectors and tangent bundles; differentials of smooth maps; vector fields; local one-parameter groups of diffeomorphisms; differential forms; integration and Stokes theorem; definition of deRham cohomology.

751. Algebraic Topology I. Cr. 3
Prereq: MAT 543 and 650. Homology and its applications including fixed-point theorems; Jordan-Brouwer separation theorem; invariance of domain; CW-complexes; Kunneth theorem.

752. Algebraic Topology II. Cr. 3
Prereq: MAT 751. Cohomology ring; orientation and duality on manifolds; homotopy theory, Hurewicz theorem.

753. Riemannian Geometry. Cr. 3

Prereq: MAT 750. Tensor Fields; Lie derivative; Riemannian manifolds; connections; geodesics; completeness; curvature.

757. Topics in Geometry and Topology. Cr. 3-4(Max. 12)

Prereq: MAT 750 or 752 or consent of instructor. Topics from Lie theory; complex manifolds; integral geometry; geometric integration theory; algebraic geometry; algebraic groups; singularity theory; geometric topology; metric continua; fixed point theory; point set topology; topological groups; differential topology; stable homotopy; H-spaces; characteristic classes; K-theory. Topics to be announced in *Schedule of Classes*.

760. Real Analysis I. Cr. 3

Prereq: MAT 561 or consent of instructor. Lebesgue measure in \mathbb{R} (to the n th power); general measures; measurable functions; integration (monotone and dominated convergence theorems); function spaces; L (to the p power) spaces; modes of convergence; product measures; Fubini theorem.

761. Real Analysis II. Cr. 3

Prereq: MAT 760 or consent of instructor. Differentiation; relationship between differentiation and integration; Radon-Nikodym theorem; Fourier transforms; Hilbert and Banach spaces; selected topics.

762. Introduction to Functional Analysis. Cr. 3

Prereq: MAT 761 or consent of instructor. Uniform boundedness, open mapping and closed graph theorems in Banach spaces; convexity, Hahn-Banach theorem, and Kriegen-Milman theorem; duality, reflexivity, weak topologies; classical Banach spaces; Hilbert space; normed algebras and spectral theory of operators.

767. Topics in Analysis. Cr. 3-4(Max. 12)

Topics selected from such areas as Banach spaces; locally convex spaces; operator theory; distribution theory; Hardy spaces; Fourier series; group representations; harmonic analysis; Banach algebras; geometric measure theory; semi-groups of operators. Topics to be announced in *Schedule of Classes*.

768. Topics in Complex Analysis. Cr. 3-4(Max. 12)

Prereq: MAT 660 or consent of instructor. Topics in complex function theory selected from such areas as conformal mapping and Schlicht functions; value distribution theory; subharmonic functions and potential theory; Fourier integrals; approximation theorems; Riemann surfaces; analytic number theory; functions of several complex variables. Topics to be announced in *Schedule of Classes*.

770. Advanced Probability Theory I. Cr. 3

Prereq: MAT 570 and 760 or consent of instructor. Probability spaces; random variables; expectations and moments; convergence concepts; product spaces and Kolmogorov extension theorem; separability of random processes; continuity of random processes; stopping times; conditional expectation; independence.

771. Advanced Probability Theory II. Cr. 3

Prereq: MAT 770 or consent of instructor. Law of large numbers; characteristic functions; limit theorems; random walks; Markov processes; stationary processes; ergodic theory; martingales.

777. Special Topics in Probability. Cr. 3-4(Max. 12)

Prereq: MAT 771. Topics of special interest such as Markov processes; time series; ergodic theory; random equations; probability measures on algebraic structures; probability measures in Banach spaces; martingales; Brownian motion; stochastic integrals. Topics to be announced in *Schedule of Classes*.

780. Statistics II. Cr. 3

Prereq: MAT 582 or consent of instructor. Introduction to mathematical statistics. Topics include: sufficient statistics; Rao-Blackwell theorem and Cramer-Rao inequality; complete family

of probability density functions; non-parametric methods; multivariate analysis; regressions and others.

787. Topics in Statistics. Cr. 3-4(Max. 12)

Prereq: MAT 780 or consent of instructor. Selected topics such as statistical estimation theory; theory of statistical hypothesis testing; non-parametric methods in statistics; statistical sequential analysis; statistical multivariate analysis. Topics to be announced in *Schedule of Classes*.

790. Directed Study. Cr. 1-4(Max. 12)

Prereq: written consent of adviser and graduate officer.

799. Master's Essay Direction. Cr. 3

Prereq: consent of adviser.

820. Advanced Topics in Differential Equations. Cr. 2-4(Max. 12)

Prereq: consent of instructor.

825. Advanced Topics in Numerical Analysis. Cr. 2-4(Max. 12)

Prereq: consent of instructor.

827. Advanced Topics in Applied Mathematics. Cr. 2-4(Max. 12)

Prereq: consent of instructor.

835. Advanced Topics in Foundations. Cr. 2-4(Max. 12)

Prereq: consent of instructor.

840. Advanced Topics in Algebra. Cr. 2-4(Max. 12)

Prereq: consent of instructor.

841. Advanced Topics in Combinatorial Theory.

Cr. 2-4(Max. 12)

Prereq: consent of instructor.

845. Advanced Topics in Number Theory. Cr. 2-4(Max. 12)

Prereq: consent of instructor.

850. Advanced Topics in Topology. Cr. 2-4(Max. 12)

Prereq: consent of instructor.

853. Advanced Topics in Differentiable Geometry and Differentiable Manifolds. Cr. 2-4(Max. 12)

Prereq: consent of instructor.

860. Advanced Topics in Analysis. Cr. 2-4(Max. 12)

Prereq: MAT 761.

862. Advanced Topics in Functional Analysis. Cr. 2-4(Max. 12)

Prereq: consent of instructor.

868. Advanced Topics in Complex Variables. Cr. 2-4(Max. 12)

Prereq: consent of instructor.

870. Advanced Topics in Probability. Cr. 2-4(Max. 12)

Prereq: consent of instructor.

880. Advanced Topics in Statistics. Cr. 2-4(Max. 12)

Prereq: consent of instructor.

895. Mathematics Seminar. Cr. 1-3(Max. 8)

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*.

899. Master's Thesis Research and Direction. Cr. 1-8(8 req.)

Prereq: consent of adviser.

999. Doctoral Dissertation Research and Direction. Cr. 1-16(30 req.)

Prereq: consent of doctoral adviser. Offered for S and U grades only.

Service Courses

090. Mathematics for Pre-Nursing Students. Cr. 3

Prereq: one unit of high school algebra. Offered for S and U grades only. No degree credit. 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.

111. Mathematics for Elementary Teachers I. Cr. 3

No degree credit in College of Liberal Arts. Open only to students in teacher preparation curricula. Passing of a standardized basic arithmetic test, administered in class, is required to pass this course. Whole numbers, integers, geometry.

112. Mathematics for Elementary Teachers II. Cr. 3

Prereq: MAT 111. No degree credit in College of Liberal Arts. Open only to students in teacher preparation curricula. Rational numbers, geometry, probability, statistics, number theory.

150. Finite Mathematics for the Social and Management Sciences. Cr. 3

Prereq: one and one-half units high school algebra and one unit of high school geometry; satisfactory score on qualifying examination. No credit after MAT 180; not for students who plan to take MAT 180. Finite mathematical methods for model building in the social and management sciences. Polynomial, exponential, and logarithmic functions, matrices, and linear programming.

151. Calculus for the Social and Management Sciences. Cr. 3

Prereq: MAT 150 or equiv. No credit after MAT 201. Elementary techniques of calculus with particular application to the social and management sciences. Sequences and limits, differentiation, integration and optimization.

300. Concepts of Mathematics. Cr. 3

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.

310. Topics in Mathematics. Cr. 1-3(Max. 6)

Prereq: one year high school algebra, one semester high school geometry. No major credit; no credit for science group requirements. Selected topics in elementary mathematics, particularly those of interest to the non-mathematician. Topics to be chosen by the instructor and announced in *Schedule of Classes*.

340. Applied Statistics. (ET 340). Cr. 3

Prereq: college algebra. No degree credit in College of Liberal Arts. Application of probability concepts; statistical theory in the use of engineering data.

342. Applied Calculus I. (ET 342). Cr. 3

Prereq: MAT 180. No degree credit in College of Liberal Arts. Application of differential and integral calculus and analytical geometry to engineering problem situations.

344. Applied Calculus II. (ET 344). Cr. 3

Prereq: MAT 342. No degree credit in College of Liberal Arts. Continuation of MAT 342, including the application of ordinary differential equations to engineering problem situations.

501. Linear Analysis. Cr. 4

Prereq: MAT 201 or equiv. No mathematics degree credit.

Fundamentals of differential and integral calculus in several variables in conjunction with an introduction to linear algebra.

502. Probability and Stochastic Processes. Cr. 4

Prereq: MAT 501. No mathematics degree credit; no credit after MAT 570. Fundamental concepts of probability: sample space probability; discrete and continuous random variables; expectation; independence; Poisson, binomial, normal distributions; Markov chains. Applications to the social sciences.

506. Finite Mathematics for Computer Science. Cr. 4

Prereq: MAT 201 or 501 or consent of instructor. Algebra of sets; mappings, and relations; groups; graph theory; enumeration; Boolean algebra; propositional logic; applications to computer science.

516. Mathematics for Elementary School Teachers I. (MAE 505). Cr. 3

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.

517. Mathematics for Elementary School Teachers II. (MAE 506). Cr. 3

Prereq: MAT 516. Credit only in College of Education. A survey of the real number system, algebraic operations, systems of linear equations, theory of equations.

518. Mathematics for Junior High School Teachers I. (MAE 510). Cr. 3

Prereq: MAT 517. Basic concepts of Euclidean geometry; trigonometric solutions of triangles.

519. Mathematics for Junior High School Teachers II. (MAE 511). Cr. 3

Prereq: MAT 518. Credit only in College of Education. Trigonometry and analytical geometry.

617. Mathematics for High School Teachers I. Cr. 1-4(Max. 6)

Prereq: consent of instructor. Selected topics from set theory, abstract algebra; geometry, and current curriculum studies in high school mathematics at ninth grade level.

618. Mathematics for High School Teachers II. Cr. 2-4

Prereq: consent of instructor. Continuation of MAT 617.

619. Mathematics for High School Teachers III. Cr. 2-4

Prereq: consent of instructor. Continuation of MAT 618.

MUSIC

Office: 105 Music Wing

Chairperson: Robert F. Lawson

Associate Chairperson and Liaison for Music Education:
Joseph A. Labuta

Assistant to the Chairperson: Michael Zelenak

Professors

Harold Arnoldi, Louise W. Conklin (Emeritus), Angelo M. Cucci, Mark F. DeLeonard (Emeritus), Joseph Fava (Emeritus), Ray P. Ferguson, James A. Gibb (Emeritus), Morris Hochberg, Malcolm M. Johns, Joseph A. Labuta, Harry M. Langsford, Robert F. Lawson, Wilbur J. Peterson (Emeritus), Valter Poole (Emeritus), Jason H. Tickton, Ruth S. Wylie (Emeritus), C. William Young

Associate Professors

Lillian J. Cassie, Carol J. Collins, James J. Hartway, Bohdan J. Kushnir, Doris Richards

Assistant Professors

Celeste Cole (Emeritus), James Franklin, Marian V. Lincoln (Emeritus), Frank Murch (Emeritus), Richard Parks, Dennis Tini, Michael Zelenak

Adjunct Professors

Antal Dorati, David DiChiera, Mischa Kottler

Adjunct Associate Professors

Salvatore Rabbio (percussion), Paul Schaller (clarinet), Eugene Wade (French horn)

Adjunct Assistant Professors

Carl Austin (theory), Emily Austin (violin), Italo Babini (violincello), Donald Baker (oboe), Clement Barone (flute), Alvin Belknap (trumpet), George Cailotto (free bass accordion), Julius Chajes (piano), Marcy Chanteaux (violincello), Robert Collins (string bass), Douglas Cornelson (clarinet), Paul Ganson (bassoon), Robert Gladstone (string bass), Marjorie Gordon (voice), Nathan Gordon (viola), William Horner (trumpet), Elizabeth Ilku (harp), Elsie Inselman (voice), Wesley Jacobs (tuba), Maxim Janowsky (string bass), Robert Jones (trombone and baritone), Gale Kramer (organ), Oscar LaGasse (tuba), Huw Lewis (organ), Homer Lindsey (bassoon), Thaddeus Markiewicz (Emeritus), Boris Maximovich (piano), Ervin Monroe (flute), Ronald Odmark (oboe), Judith Peters (saxophone), Sergio Pezzetti (voice), Joan Rossi (Emerita), Toma Schwartz (piano), Darwin Swartz (piano), Joseph Skrzynski (trombone and baritone), Gordon Smith (trumpet), James Tamburini (trumpet), Patricia Terry (harp)

Special Adjunct Faculty

For Jazz Studies And Contemporary Media

George Benson (woodwinds), Jack Brokensha (vibes), Buddy Budson (piano), Angelo Carlisi (woodwinds), Maurice Davis (trumpet), Jerry Glassel (guitar), Davis Gloff (voice), Edward Gooch (trombone), Mike Grace (bass), Leo Harrison (trombone), James Hartway (piano), Billy Horner (trumpet), David Jones (history), Gary Leach (bass), Don Lewandowski (bass), Jerry McKenzie (percussion), Matt Michaels (piano), Bruce Nazarian (guitar), Larry Nozero (woodwinds), Dan Pliskow (bass), Richard Rattner (business/law), Joe Resnick

(percussion), Ernie Rogers (woodwinds), Jeff Steinberg (theory/history), Gene Stewart (percussion), Gordon Stump (trumpet), Dennis Tini (voice and piano), George Troia Jr. (trombone), Robert Troy (guitar), John Trudell (trumpet), Dave Van de Pitte (theory/history)

DEGREE PROGRAMS

Bachelor of Arts—with a major in music

Bachelor of Music—with a major in church music, composition, jazz studies and contemporary media, music education, music industry management, music therapy, performance, and theory

Master of Arts—with a major in music

Master of Music—with a major in composition, choral conducting, 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.

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 pass an audition by faculty in the area of instrumental or vocal performance, and be approved by the director of Music Therapy.

Students desiring to elect a concentration in Performance must audition with the divisional director of that program.

Students desiring to elect a concentration in Jazz Studies and Contemporary Media must audition with the divisional director of that program.

All Music Majors pursuing undergraduate degrees must maintain a 2.0 honor point average in each of the categories of course work in music (i.e., MUA, MUP, MUT, MUH and MED) required for a curriculum in order to be certified for graduation.

Undergraduate Major

Group requirements of the College for all Undergraduate Degrees (see page 222)

General Education Requirements for all Undergraduate Degrees

	<i>credits</i>
English (as prescribed by English Department).....	7
Social Sciences, including the American Government Requirement.....	11
PSY 101.....	4
PHY 310, The Sounds of Music.....	4
Science course elective (PSY 417 recommended).....	4
Humanities electives other than music history (PHI 370 recommended: see page 223 for restrictions).....	3-4

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 114, 115, 116, 117, 214, 215, 216, 217, 405, 406
2. MUH 331, 332, 333, 334
3. MUA 179, 279, 379

Performance Ensemble requirements for all undergraduate music majors

1. Performance Ensembles are defined as MUA 280, 281, 283, 284, 285, 286, 287, 289
2. All undergraduate music majors (except majors in jazz studies and contemporary media) must fulfill a minimum of eight semesters of a Performance Ensemble. Students transferring from other institutions must have their transcripts evaluated by the departmental chairperson for possible advanced credit toward the Performance Ensemble requirement.
3. All undergraduate music majors who elect eight or more credits in the fall or winter semesters must elect a Performance Ensemble concurrently in that semester.
4. Specific requirements for various curricula in music are given below:

- (a) Bachelor of Arts—Performance Ensemble of the principal instrument;
- (b) Bachelor of Music with a Major in Composition—Performance Ensemble of the principal instrument;
- (c) Bachelor of Music with a Major in Instrumental Music Education—
 1. Winds or percussion—MUA 280, including marching band
 2. Strings—MUA 281;
- (d) Bachelor of Music with a Major in Vocal Music Education—any vocal Performance Ensemble with at least four semesters of MUA 284, 285 or 289;
- (e) Bachelor of Music with a Major in Music Therapy—Performance Ensemble of the principal instrument;
- (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 four semesters of either MUA 285 or 289
 4. Winds or percussion—minimum of two semesters of MUA 281 (except saxophone) and four semesters of MUA 280
 5. Strings—MUA 281
 6. Classic Guitar—any Performance Ensemble
- (g) Bachelor of Music with a Major in Church Music—any vocal Performance Ensemble with a minimum of four semesters of MUA 284, 285 or 289.;
- (h) Bachelor of Music with a Major in Theory—Performance Ensemble of the principal instrument;

- (i) Bachelor of Music with a Major in Music Industry Management—Performance Ensemble of the principal instrument.
5. All music majors with a major in Jazz Studies and Contemporary Media must fulfill the following specific ensemble requirements:

- (a) Eight semesters of MUA 282;
- (b) Recommended elections from MUA 280, 281, 283, 284, 285, 286, 287 or 289.

Chamber music ensemble requirements for specific Bachelor of Music curricula

(Chamber music ensemble is defined as the appropriate section
of MUA 288)

1. Bachelor of Music with a Major in Performance—

- (a) Organ (one semester);
 - (b) Piano (four semesters);
 - (c) Winds, percussion, strings (four semesters);
 - (d) Classic Guitar (four semesters);
2. Bachelor of Music with a Major in Church Music (one semester);
 3. Bachelor of Music with a Major in Jazz Studies and Contemporary Media (two semesters).

SPECIFIC CURRICULUM REQUIREMENTS

Bachelor of Arts

- (a) MUT 210;
- (b) MUH 335;
- (c) Foreign language group requirement;
- (d) Necessary elections from courses, other than music, to complete graduation requirements.

Note: only fifty-six credits in music are permitted toward this degree.

Bachelor of Music

— With a Major in Church Music

- (a) MUT 204, 205, 210, 211, 317;
- (b) MUA 260, 261, 267;
- (c) MUH 535;
- (d) Two semesters of MUA 573;
- (e) Two semesters of MUP 121 or equivalent by examination;
- (f) Twenty-four credits of MUP 220;
- (g) Performance of a half recital in the junior year; and a full recital in the senior year.

— With a Major in Composition or Theory

- (a) MUT 204, 205, 210, 211, 212 or 401, 300, 310, 311, 317, 504, 506 or 507 or 508 and
 1. For Composition majors—MUT 410, 411; MUA 173, 174, 175, 176; PHI 370
 2. For Theory majors—Foreign Language Group Requirement (French or German recommended);
- (b) MUH 335 or 336 or 337 recommended;
- (c) Senior projects—
 1. For Composition majors—presentation of an original composition approved by the Director of the Theory and Composition Division
 2. For Theory majors—presentation of a lecture coordinated by the Director of the Theory and Composition Division;
- (d) MUA 267, and four semesters of piano in addition to MUA 379.

— With a Major in Instrumental Music Education

- (a) Eight semesters of the principal instrument selected from MUP 223, 224, 225 or 226 at one credit per semester;
- (b) One semester of MUA 173; two semesters of MUA 174; one semester of MUA 175 and MUA 176, plus satisfactory proficiency on all orchestra instruments as prescribed by the Music Education Division;
- (c) MUA 267, 268;
- (d) MED 350, 454, 455;
- (e) MUT 507 (for winds and percussion majors);
- (f) MUT 300 (for string majors).

— With a Major in Vocal Music Education

- (a) MUP 221—four semesters at one credit per semester;
- (b) MUP 222—four semesters at one credit per semester;
- (c) Four additional semesters of MUP 221 and/or 222 at one credit per semester, as directed by the adviser;
- (d) MUT 314—taken in the sophomore year;
- (e) MUA 267, 268;
- (f) MED 350, 451, 452;
- (g) Six credits selected from MUA 170, 173, 174, 175 or 176.

— With a Major in Special Music Education

- (a) All courses required for the Vocal Music Education curriculum or the Instrumental Music Education curriculum.
- (b) MUA 170, 475;
- (c) MED 557;
- (d) SED 503

— With a Major in Music Therapy

- (a) Eight semesters of the principal instrument selected from MUP 220-229 at one credit per semester;
- (b) MUT 300 or 507 or 508;
- (c) MUA 170, 172, 267, 375, 475, 568, 571, 572;
- (d) PSY 130, 331, 417 and one psychology elective;
- (e) Additional music and general electives selected with assistance of the Divisional Director.

Note: This program requires an internship by direction of the Divisional Director for completion of the prerequisites for certification as a Registered Music Therapist.

— With a Major in Performance

- (a) MUT 210, 317;
- (b) MUH 535;
- (c) Twenty-four credits of MUP 220-228 in the principal instrument (thirty credits maximum);
- (d) Two credits of one secondary instrument taken in the MUP 120-129 series (violinists elect viola or complete 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 204, 205, 211; MUA 575, 576, 577
 2. Organ—MUT 204, 205, 211; two semesters of MUA 573; MUA 570
 3. Strings, winds or percussion—MUT 300
 4. Voice—MUT 508; proficiency in two foreign romance languages other than the native tongue at the discretion of the adviser.

— 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 semester for eight semesters for a total of twenty-four credits (thirty credits maximum);
- (c) All specific course and recital requirements for the Bachelor of Music with a major in Voice, Piano or Organ Performance.

— 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 semester for eight semesters for a total of twenty-four credits (thirty credits maximum);
- (c) All specific course and recital requirements for a Bachelor of Music with a major in Strings, Woodwinds, Brasswinds or Percussion Performance.
- (d) Eight semesters of MUA 280 for Woodwinds, Brasswinds and Percussion.

— With a Major in Jazz Studies and Contemporary Media

- (a) Eight semesters of the principal instrument selected from MUP 520-529;
- (b) MUT 212, 300, 310, 317, 511, 512, 513;
- (c) MUH 336, 337;
- (d) MUA 267, 560, 561, 569;
- (e) Additional music electives, senior recital or project selected with the assistance of the Divisional Director.

— With a Major in Music Industry Management

Students may not elect more than twenty-nine credits in the School of Business Administration for this degree.

- (a) Eight semesters of the principal instrument selected from MUP 220-229 at one credit per semester;
- (b) MUT 300;
- (c) MUA 560, 561;
- (d) ECO 410, 510;
- (e) CSC 100;
- (f) MAT 150;
- (g) ACC 301, 302, 351;
- (h) MGT 559, 560, 660;
- (i) MKT 530;
- (j) FBE 529;
- (k) Additional music electives selected with assistance of the Divisional Director

GRADUATE MAJORS

Entrance Requirements: All applicants for graduate degrees are required to pass the departmental aural perception, theory and history examinations. 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 or a designee of the major area of concentration.

Candidacy must be established by the time twelve credits have been earned toward the master's degree. Applicants become degree candidates only upon recommendation of the departmental Graduate Coordinating Officer or the Committee on Graduate Studies.

Plan A: Twenty-four credits in course work, plus a thesis. An original composition approved by the Divisional Director of Theory/Composition substitutes for the thesis in the M.M. degree with a major in composition.

Plan B: Thirty credits in course work, plus an essay.

Plan C: Thirty-two credits in course work, plus a recital.

Candidates for the Master of Arts degree with a major in music, and the Master of Music degree with majors in theory or composition, must elect Plan A. Plan B is open to candidates for the degree of Master of Music in Music Education. Candidates for the Master of Music degree with a major in performance must elect Plan C.

Oral Examination: An oral examination is required of all students electing Plan A or Plan C.

Master of Arts

Admission: The student must present a minimum of forty-five 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 chairperson. Before a student can be admitted to candidacy in the Master of Arts curriculum, satisfactory completion of a reading examination in a foreign language (preferably German or French) is required.

	<i>credits</i>
Theory and Music History (minimum of six credits in each, other than MUH 530 and directed study courses).....	14
MUH 530.....	3
Music electives or cognates.....	7
MUH 899.....	8
	32

Master of Music

— With a 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; must be prepared to present scores for evidence of proper preparation; and must be accepted into the curriculum by the Divisional Director.

	<i>credits</i>
MUT 507, 600, 710, 792.....	15
Music History (other than MUH 530 and directed study courses).....	6
MUH 530.....	3
MUH 899—an original composition in one of the larger forms of a minimum of twelve minutes duration approved by the adviser and separate from the work done in MUT 710.....	8
	Total: 32

— With a Major in Theory

Prerequisite: Bachelor of Music with a major in theory or composition; acceptance into the program by the Divisional Director.

	<i>credits</i>
Music Theory selected from MUT 506, 700, 702, 703, 704, 705, 710 (max. 3), 792.....	15
Music History (other than MUH 530 and directed study courses).....	6
MUH 530.....	3
MUH 899.....	8
	Total: 32

— With a Major in Choral Conducting

Prerequisites: Baccalaureate degree with a major in voice performance, or the equivalent in course work experience. Applicants must demonstrate proficiencies in the areas of score reading and piano facility. All applicants must be accepted into the curriculum by the Divisional Director of the Voice Division. If MED 555, Choral Conducting and Rehearsal Techniques, or its equivalent, has not been taken as an undergraduate, it must be elected for no graduate credit.

	<i>Credits</i>
MUH 530.....	3
Music History (except MUH 530 and directed studies).....	6
MUT 702 (and other Music Theory courses except directed studies).....	6
MUA 745, Advanced Conducting: Choral or Orchestral.....	6
MUA 737, Choral Literature.....	3
Directed Studies (MUH 791 or 792).....	4
Electives (including recommended Humanities cognate, HUM 652).....	4
	Total: 32

— With a 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—700 level—Principal Instrument (max. 12 credits).....	9
MUP—600 level—Secondary Instrument (organ majors - MUA 573).....	3
MUA 788.....	1
Music Theory (other than directed study courses).....	6
Music History (other than MUH 530 and directed study courses).....	6
MUH 530.....	3
Music Electives.....	4
Graduation Recital required	
	Total: 32

— With a 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 757, 799.....	18
MUP—700 or 600 level.....	2
Music history (other than directed study courses).....	6
Electives.....	6
	Total: 32

COURSES OF INSTRUCTION¹

Music Theory (MUT)

110. Elementary Music Theory. Cr. 2

No degree credit for music majors. Terminology and standard notation, including intervals, triads, scales, rhythm and correlated ear training.

114. Theory I. Cr. 3

Prereq: MUT 110 or satisfactory equiv. by examination. Prior knowledge of fundamentals including scales, clefs, key signatures, triads and intervals is assumed. Principles of SATB part-writing, voice leading and melodic harmonization, including all diatonic triads and seventh chords, inversions, non-harmonic tones and modulation to closely-related keys.

115. Ear Training I. Cr. 1

An introduction to sight singing and the basics of solfeggio. Beginning with stepwise diatonic movement and proceeding to all melodic intervals and modulation to closely related keys. Simple and compound meters and syncopation are also included.

116. Theory II. Cr. 3

Prereq: MUT 114. Secondary dominants, altered chords, modulation to all keys.

117. Ear Training II. Cr. 1

Prereq: MUT 115. A continuation of MUT 115. Sight-singing chromatic melodies, modal melodies, less common meter signatures and more complex rhythmic problems.

204. Keyboard Harmony I. Cr. 1

Prereq: junior standing. Harmonic progressions applied to keyboard; figured bass; harmonization of soprano or bass; modulation transposition and score reading.

205. Keyboard Harmony II. Cr. 1

Prereq: MUT 204. Continuation of MUT 204. Advanced keyboard harmony.

210. Eighteenth Century Counterpoint I. Cr. 2

Prereq: MUT 214. Contrapuntal technique of J.S. Bach approached through species counterpoint.

211. Eighteenth Century Counterpoint II. Cr. 2

Prereq: MUT 210. Continuation of MUT 210.

212. Jazz Theory and Harmony. Cr. 3

Harmonic, rhythmic and melodic concepts used in jazz including basic chord nomenclature, non-tertian sonorities and advanced improvisation.

214. Theory III. Cr. 3

Prereq: MUT 116. Nineteenth century trends including chromatic harmony, species counterpoint, voice leading, structure and tonal organization.

215. Ear Training III. Cr. 1

Prereq: MUT 117. Melodic dictation, simple and compound time, syncopation, interval and scale recognition and error detection.

216. Theory IV. Cr. 3

Prereq: MUT 214. Twentieth century music; impressionistic techniques. Mainstream compositional devices of melody, harmony and rhythm; serial music, electronic music, aleatoric music,

contemporary notation.

217. Ear Training IV. Cr. 1

Prereq: MUT 215. Harmonic dictation, four-part dictation including recognition of common chord progressions, cadences, non-harmonic tones, chord color and seventh chords.

300. Orchestration. Cr. 2

Prereq: MUT 216. Practical course in arranging music for orchestra, including study of transposition, arrangements from a piano score; general treatment of range, relationship, timbre, balance of orchestral instruments.

310. Composition I. Cr. 2

Prereq: MUT 216. Introduction to creative writing. Creative properties of melodic line in relation to rhythm, tonality, cadence and form; aesthetic considerations. Writing for unaccompanied instruments.

311. Composition II. Cr. 2

Prereq: MUT 310. Continuation of MUT 310. Emphasis on creative aspects of rhythm, cadence, tonal polarity, concepts of consonance and dissonance within framework of larger texture.

314. Solfeggio. Cr. 2

Prereq: MUT 115.

317. Advanced *Melodic and Harmonic Dictation. Cr. 1

Prereq: MUT 215 and 217. A continuation of MUT 215 and MUT 217 including jazz harmony and rhythm.

401. Counterpoint of the Renaissance Period. Cr. 3

Prereq: MUT 116. Two-, three-, and four-part structure with emphasis on the style of Palestrina.

405. Analytic Technique I. Cr. 2

Prereq: MUT 216. Structural analysis of varied musical materials historically organized.

406. Analytic Technique II. Cr. 2

Prereq: MUT 405. Continuation of MUT 405.

410. Composition III. Cr. 2

Prereq: MUT 311 and 406. Creative writing in twentieth century idioms. Aesthetic, stylistic and formal problems in composition employing contemporary techniques.

411. Composition IV. Cr. 2

Prereq: MUT 410. Continuation of MUT 410.

504. History of Music Theory. Cr. 3

Prereq: junior standing. Comprehensive survey from ancient Greeks to present.

506. Advanced Orchestration. Cr. 3

Prereq: MUT 300. Arranging and scoring for orchestra in all forms of ensemble structure.

507. Band Arranging. Cr. 3

Prereq: MUT 216. Open only to music majors.

508. Choral Arranging. Cr. 3

Prereq: MUT 216. Open only to music majors.

511. Jazz Arranging and Composition I. Cr. 3

Prereq: MUT 216 and 217. Offered for undergraduate credit only. Creative writing for small jazz and pop ensembles. Arranging for three to five pieces including "head" arrangements, block chord technique and contrapuntal writing.

512. Jazz Arranging and Composition II. Cr. 3

Prereq: MUT 511. Offered for undergraduate credit only. Creative

¹ See page 633 for interpretation of numbering system, signs and abbreviations

writing for larger jazz and pop ensembles; jazz arranging for six to eighteen pieces combining various textures and timbres.

513. Jazz Arranging and Orchestration. Cr. 3

Prereq: MUT 300, 512. Offered for undergraduate credit only. Arranging pieces with concentration on orchestrating large jazz ensembles.

700. Eighteenth Century Canon and Fugue. Cr. 3

Prereq: MUT 211 or equiv. Complex contrapuntal techniques of the eighteenth century and the fugal style of the Baroque period.

702. Seminar in Tonal Analysis. Cr. 2

Prereq: MUT 406 or equiv. Schenker's theory of tonal music and method of graphic notation for analysis.

703. Seminar in Atonal Analysis. Cr. 2

Prereq: MUT 406 or equiv. Introduction to pitch-set theory and other approaches to analysis of atonal music.

704. Seminar in Twentieth Century Theorists. Cr. 2(Max. 6)

Prereq: MUT 406 or equiv. Theories of various contemporary theorists examined in depth.

705. Seminar in Music Theory Pedagogy. Cr. 2

Study of materials, teaching techniques, philosophy and organization of music theory classes.

710. Graduate Composition. Cr. 3(Max. 9)

Prereq: MUT 411 or consent of instructor. Advanced creative work in all of the idioms of twentieth century musical composition.

792. Directed Study in Theory. Cr. 2(Max. 6)

Prereq: written consent of instructor, adviser and graduate officer.

Music History (MUH)

130. Music Literature: Keyboard and Song. Cr. 3

Not open to music majors. Folk songs, art songs, all keyboard literature (harpsichord, piano, organ).

131. Music Literature: Symphonic and Chamber. Cr. 3

Not open to music majors. Symphonic literature, concerto, chamber music.

132. Music Literature: Opera and Oratorio. Cr. 3

Not open to music majors. Opera, mass, oratorio.

137. Music History Survey: Roots to 1750. Cr. 3

Not open to music majors. Developing listening skills through an historical survey of musical styles, major composers, social, political and cultural influences.

138. Music History Survey: Haydn to 1950. Cr. 3

Not open to music majors. Continuation of MUH 137 from 1750 to 1950.

331. Music History and Literature I. Cr. 3

Prereq: sophomore standing and MUT 116 or equiv., music major; others by consent of chairperson. Primitive music through the Renaissance.

332. Music History and Literature II. Cr. 3

Prereq: sophomore standing and mut 116 or equiv.; music major; others by consent of chairperson. Baroque through pre-Classical (1600-1750).

333. Music History and Literature III. Cr. 3

Prereq: sophomore standing and MUT 116 or equiv.; music major; others by consent of chairperson. Classic Era and Romanticism (1750 - 1875).

334. Music History and Literature IV. Cr. 3

Prereq: sophomore standing and MUT 116 or equiv.; music major; others by consent of chairperson. Late Romantic to present time (1875 - 1970).

335. Contemporary Music History. Cr. 3

Prereq: sophomore standing; open to all students. An intensive study of contemporary music including history and literature. Tone rows, polytonality, *avant-garde* music, electronic music, aleatoric music, computer techniques, new keyboard and instrumental techniques, contemporary operas and oratorios. Orchestral and octavo scores analyzed.

336. History of Jazz to 1950. Cr. 3

Development of jazz from its inception to 1950.

337. History of Jazz: 1950 to the Present. Cr. 3

Continuation of MUH 336.

530. Introduction to Musicology. Cr. 3

Prereq: graduate standing in music or consent of instructor. Music bibliography and research techniques.

535. Studies in Performance Literature. Cr. 3

Prereq: performance major in music. All areas from the Baroque period to the present.

731. Studies in Medieval Music. Cr. 3

Prereq: MED 757 or MUH 530. Music from its origins to the Burgundian School.

732. Studies in Renaissance Music. Cr. 3

Prereq: MED 757 or MUH 530. Fifteenth and sixteenth centuries, from Burgundian School through Palestrina.

733. Studies in Baroque Music. Cr. 3

Prereq: MED 757 or MUH 530. From Monteverdi to 1750. Special reports; research projects.

734. Studies in Classical Music. Cr. 3

Prereq: MED 757 or MUH 530. From 1750 to 1825. Special reports; research projects.

735. Studies in Romantic Music. Cr. 3

Prereq: MED 757 or MUH 530. Nineteenth century. Special reports and research projects.

736. Studies in Twentieth Century Music. Cr. 3

Prereq: MED 757 or MUH 530. Special reports and research projects.

791. Directed Study in Music History. Cr. 3(Max. 6)

Prereq: written consent of adviser and graduate officer. Research investigations in historical musicology.

899. Master's Thesis Direction. Cr. 2-8(8 req.)

Prereq: nine credits in graduate Music History or nine credits in MUT 710 and consent of adviser.

Applied Music (MUP)

Private Instruction

The College offers private instruction in voice and specific musical instruments. These courses are open to music majors by audition only, and require a special fee for registration. Undergraduate students must elect eight credits, and graduate students must elect five credits, to be eligible to elect these courses. See the *Schedule of Classes* for details regarding these special fees.

These courses are offered for either one or three credits. They are open for three credits only to performance majors in music. Seven hours of instruction over the semester are required for one credit; fourteen hours of instruction over the semester 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 22x or 52x series for one credit.

The following courses (12x series) are for students who wish to study voice or an instrument in a secondary capacity. The courses are open only to performance majors or to music education majors.

120. Organ. Cr. 1
Open only to performance majors or music education majors.

121. Piano. Cr. 1
Open only to performance majors or music education majors.

122. Voice. Cr. 1
Open only to performance majors or music education majors.

123. Stringed Instruments. Cr. 1
Open only to performance majors or music education majors.

124. Woodwind Instruments. Cr. 1
Open only to performance majors or music education majors.

125. Brasswind Instruments. Cr. 1
Open only to performance majors or music education majors.

126. Percussion Instruments. Cr. 1
Open only to performance majors or music education majors.

127. Harp. Cr. 1
Open only to performance majors or music education majors.

128. Classic Guitar. Cr. 1
Open only to performance majors or music education majors.

129. Free Bass Accordion. Cr. 1
Open only to performance majors or music education majors.

The following courses (22x series) are for students who wish to study voice or an instrument in a principal capacity. Maximum election is limited to ten semesters. They are not open to Jazz Studies majors, and are open for three credits to performance majors only.

220. Organ. Cr. 1 or 3
Coreq: any performance ensemble in the MUA 28X series other than MUA 282.

221. Piano. Cr. 1 or 3
Coreq: any performance ensemble in the MUA 28X series other than

MUA 282.

222. Voice. Cr. 1 or 3
Coreq: any performance ensemble selected from MUA 283, MUA 284, MUA 285, MUA 286, MUA 287 and MUA 289.

223. Stringed Instruments. Cr. 1 or 3
Coreq: MUA 281.

224. Woodwind Instruments. Cr. 1 or 3
Coreq: MUA 280 or MUA 281.

225. Brasswind Instruments. Cr. 1 or 3
Coreq: MUA 280 or MUA 281.

226. Percussion Instruments. Cr. 1 or 3
Coreq: MUA 280 or MUA 281.

227. Harp. Cr. 1 or 3
Coreq: MUA 280 or MUA 281.

228. Classic Guitar. Cr. 1 or 3
Coreq: any performance ensemble in the MUA 28X series.

229. Free Bass Accordion. Cr. 1 or 3
Coreq: any performance ensemble in the MUA 28X series.

The following courses (52x series) are open only to jazz studies majors. All others must have the consent of the department chairperson. The corequisite for these courses is MUA 282 or MUA 782.

520. Jazz Organ. Cr. 1
Coreq: MUA 282 or MUA 782. Open only to jazz studies majors; all others only by consent of department chairperson.

521. Jazz Piano. Cr. 1
Coreq: MUA 282 or MUA 782. Open only to jazz studies majors; all others only by consent of department chairperson.

522. Jazz Voice. Cr. 1
Coreq: MUA 282 or MUA 782. Open only to jazz studies majors; all others only by consent of department chairperson.

523. Jazz Strings. Cr. 1
Coreq: MUA 282 or MUA 782. Open only to jazz studies majors; all others only by consent of department chairperson.

524. Jazz Woodwinds. Cr. 1
Coreq: MUA 282 or MUA 782. Open only to jazz studies majors; all others only by consent of department chairperson.

525. Jazz Brasswinds. Cr. 1
Coreq: MUA 282 or MUA 782. Open only to jazz studies majors; all others only by consent of department chairperson.

526. Jazz Percussion. Cr. 1
Coreq: MUA 282 or MUA 782. Open only to jazz studies majors; all others only by consent of department chairperson.

527. Jazz Harp. Cr. 1
Coreq: MUA 282 or MUA 782. Open only to jazz studies majors; all others only by consent of department chairperson.

528. Jazz Guitar. Cr. 1
Coreq: MUA 282 or MUA 782. Open only to jazz studies majors; all others only by consent of department chairperson.

529. Jazz Accordion. Cr. 1
Coreq: MUA 282 or MUA 782. Open only to jazz studies majors; all others only by consent of department chairperson.

The following courses (62x series) are only for graduate students who wish to study voice or an instrument in a secondary capacity. They are

open only to graduate music majors in performance or music education.

620. Organ. Cr. 1

Open only to graduate music majors in performance or music education.

621. Piano. Cr. 1

Open only to graduate music majors in performance or music education.

622. Voice. Cr. 1

Open only to graduate music majors in performance or music education.

623. Stringed Instruments. Cr. 1

Open only to graduate music majors in performance or music education.

624. Woodwind Instruments. Cr. 1

Open only to graduate music majors in performance or music education.

625. Brasswind Instruments. Cr. 1

Open only to graduate music majors in performance or music education.

626. Percussion Instruments. Cr. 1

Open only to graduate music majors in performance or music education.

627. Harp. Cr. 1

Open only to graduate music majors in performance or music education.

628. Classic Guitar. Cr. 1

Open only to graduate music majors in performance or music education.

629. Free Bass Accordion. Cr. 1

Open only to graduate music majors in performance or music education.

The following courses (72x series) are for graduate music majors who wish to study voice or an instrument in a principal capacity. They are open only for three credits to performance majors.

720. Organ. Cr. 1 or 3

Open only to graduate music majors. Open only to performance majors for three credits. May not be elected for more than eight semesters.

721. Piano. Cr. 1 or 3

Open only to graduate music majors. Open for three credits to performance majors only. May not be elected for more than eight semesters.

722. Voice. Cr. 1 or 3

Open only to graduate music majors. Open for three credits to performance majors only. May not be elected for more than eight semesters.

723. Stringed Instruments. Cr. 1 or 3

Open only to graduate music majors. Open for three credits to performance majors only. May not be elected for more than eight semesters.

724. Woodwind Instruments. Cr. 1 or 3

Open only to graduate music majors. Open for three credits to performance majors only. May not be elected for more than eight semesters.

725. Brasswind Instruments. Cr. 1 or 3

Open only to graduate music majors. Open for three credits to performance majors only. May not be elected for more than eight semesters.

726. Percussion Instruments. Cr. 1 or 3

Open only to graduate music majors. Open for three credits to performance majors only. May not be elected for more than eight semesters.

727. Harp. Cr. 1 or 3

Open only to graduate music majors. Open for three credits to performance majors only. May not be elected for more than eight semesters.

728. Classic Guitar. Cr. 1 or 3

Open only to graduate music majors. Open for three credits to performance majors only. May not be elected for more than eight semesters.

729. Free Bass Accordion. Cr. 1 or 3

Open only to graduate music majors. Open for three credits to performance majors only. May not be elected for more than eight semesters.

Music Applied (MUA)

CLASSROOM INSTRUCTION

737. Choral Literature. Cr. 3

Prereq: consent of instructor. Survey of available choral literature for various voice combinations. A materials course for choral conductors.

260. Church Music and Materials I. Cr. 2

Prereq: MUA 267 and major in organ or church music. Practical application of material used in churches of various faiths. For choir directors and organists.

261. Church Music and Materials II. Cr. 2

Prereq: MUA 260. Continuation of MUA 260.

267. Conducting Techniques I. Cr. 2

Prereq: MUT 216, MUT 217 or equiv. Rudiments of conducting; special attention to baton techniques.

268. Conducting Techniques II. Cr. 2

Prereq: MUA 267. Continuation of MUA 267. Score reading and rehearsal techniques.

560. Business of Music. Cr. 2

Offered for undergraduate credit only. A discussion of copyright law, performing rights organizations, contractual agreements, publishing and recording considerations, and other business concerns.

561. Recording and Electronic Techniques. Cr. 3

Prereq: major in jazz studies or music industry management. Offered for undergraduate credit only. Material fee as indicated in *Schedule of Classes*. Technical knowledge of studio facilities, styles of recording procedures, overdubbing, and stylistic considerations. Adaptation of electronic music concepts to jazz and pop music including the use of synthesizers, phasers, echoplex, and other sound modification equipment.

569. Stage Band Direction. Cr. 1

Prereq: MUA 267. Offered for undergraduate credit only.

Techniques of big-band direction in a jazz medium.

570. Organ Guild Examination Class. 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.

575. Piano Pedagogy. Cr. 3

Prereq: junior standing; consent of instructor or chairperson. Open only to performance majors in piano or by written consent of chairperson. Does not count toward teacher certification. Piano pedagogy from various viewpoints to prepare students in the piano performance curriculum for service as private or classroom piano instructors.

576. Supervised Teaching for Piano Laboratory Classes. Cr. 2(Max. 4)

Prereq: written consent of instructor or chairperson. Supplement to the present curriculum in piano performance; supervised teaching experience for students pursuing that curriculum.

577. Techniques of Piano Accompaniment. Cr. 2

Prereq: junior standing; consent of instructor or chairperson. Gives the advanced piano student various techniques of accompaniment among various types of literature.

745. Advanced Conducting: Choral and Orchestral. Cr. 3(Max. 9)

Prereq: written consent of chairperson. Individual instruction with one of the conductors of the major performance ensembles including score reading; baton techniques; rehearsal techniques; and stylistic interpretation.

Chamber Ensembles

288. Chamber Music and Special Ensembles. Cr. 1
All forms.

788. Chamber Music and Special Ensembles. Cr. 1
Prereq: written consent of department chairperson. All forms.

Instrumental Classes

173. String Class. Cr. 2(Max. 6)
Techniques and fundamental problems in the playing and teaching of stringed instruments.

174. Woodwind Class. Cr. 2(Max. 6)
Techniques and fundamental problems in the playing and teaching of woodwind instruments.

175. Brasswind Class. Cr. 2(Max. 6)
Techniques and fundamental problems in the playing and teaching of brasswind instruments.

176. Percussion Class. Cr. 2
Techniques and fundamental problems in the playing and teaching of percussion instruments.

Instrumental/Vocal Semi-Private Instruction

170. Guitar Proficiency Class. Cr. 2(Max. 8)
Prereq: music major; others by consent of instructor. Functional

guitar for music therapists and teachers.

171. Piano Class I. Cr. 2

Not open to music majors. Rudiments: scales, study of simple compositions.

172. Voice Class I. Cr. 2(Max. 4)

Fundamentals in voice training. Correct breathing; tone placement; articulation vocalises.

178. Classic Guitar Class I. Cr. 2

Open only to beginning students. Performance, basic posture and tone production.

179. Piano Proficiency: Level I. Cr. 2

Open only to music majors. Repertoire, scales, sight reading, harmonization, simple transposition. Certification of undergraduate core piano requirement on satisfactory completion of MUA 379.

271. Piano Class II. Cr. 2

Prereq: MUA 171 or equiv. Not open to music majors. Continuation of MUA 171.

272. Voice Class II. Cr. 2(Max. 4)

Voice building and repertoire; simple art songs.

278. Classic Guitar Class II. Cr. 2

Prereq: MUA 178 or equiv. Continuation of MUA 178.

279. Piano Proficiency: Level II. Cr. 2

Prereq: MUA 179 or equiv. Open to music majors. Continuation of MUA 179.

371. Piano Class III. Cr. 2

Prereq: MUA 271 or equiv. Not open to music majors. Continuation of MUA 271.

372. Voice Class III. Cr. 2(Max. 4)

Prereq: MUA 272 or equiv. Voice building and repertoire; Romantic to contemporary periods.

378. Classic Guitar Class III. Cr. 2(Max. 4)

Prereq: MUA 278 or consent of instructor. Continuation of MUA 278.

379. Piano Proficiency: Level III. Cr. 2

Prereq: MUA 279 or equiv. Open only to music majors. Continuation of MUA 279. Satisfactory completion of MUA 379 leads to fulfillment of the undergraduate core piano proficiency requirement and to certification.

445. Intern Training in Operatic Literature and Performance. Cr. 9

Prereq: written consent of chairperson. Concentrated professional internship with the Michigan Opera Theater.

471. Piano Class IV. Cr. 2(Max. 4)

Prereq: MUA 371 or equiv. Not open to music majors. Continuation of MUA 371.

573. Harpsichord Class. Cr. 2(Max. 4)

Prereq: consent of instructor.

Music Therapy Courses

375. Recreational Music. Cr. 2

Leadership skills, group-management techniques, playing social instruments, collecting materials for music activities for all age groups.

475. Music Therapy Practicum. Cr. 2 (Max. 8)
Prereq: MUA 375 and 568 or consent of instructor. Observation and participation in music therapy programs in area agencies employing a Registered Music Therapist.

568. Introduction to Music Therapy. Cr. 2
Survey of the field of music therapy; qualifications and skills required to become a Registered Music Therapist; observation of music with retarded, mentally ill, and physically handicapped clients.

571. Influence of Music on Human Behavior. Cr. 3
Prereq: MUA 568, major in music therapy or consent of instructor. Study of the function of music in ethnic groups, society in the United States, and specific handicapped populations.

572. Music Therapy Techniques. Cr. 3
Prereq: MUA 571. Structuring music activities toward specific goals with mentally and physically impaired clients. Role of music therapy in various types of agencies.

Performance Ensembles

280. University Bands. Cr. 1
Prereq: consent of director. Members of the Marching Band may have to participate in special rehearsals before the official opening of the fall semester; members of the Symphony Band are required to perform at the Commencement exercises, and exercises may take place after the official close of the fall or winter semesters.

281. University Symphony Orchestra. Cr. 1
Prereq: consent of director.

282. Jazz Lab Band. Cr. 1
Prereq: consent of director.

283. Men's Glee Club. Cr. 1
Prereq: consent of director.

284. Choral Union. Cr. 1
Prereq: consent of director.

285. Chamber Singers. Cr. 1
Prereq: consent of director; coreq: MUA 289.

286. Opera Workshop. (SPT 286). Cr. 1 (Max. 8)
Prereq: consent of director.

287. Women's Chorale. Cr. 1
Prereq: consent of director.

289. Chamber Choir. Cr. 1
Prereq: consent of director. High quality mixed choir; performance of choral works with the University Symphony and the Detroit Symphony Orchestra.

780. University Bands. Cr. 1
Prereq: consent of director.

781. University Symphony Orchestra. Cr. 1
Prereq: consent of director.

782. Jazz Lab Band. Cr. 1
Prereq: consent of director.

783. Men's Glee Club. Cr. 1
Prereq: consent of director.

784. Choral Union. Cr. 1
Prereq: consent of director.

785. Chamber Singers. Cr. 1
Prereq: consent of director; coreq: MUA 789.

786. Opera Workshop. (SPT 786). Cr. 1 (Max. 8)
Prereq: consent of director.

787. Women's Chorale. Cr. 1
Prereq: consent of director.

789. Chamber Choir. Cr. 1
Prereq: consent of director. A mixed choir of high quality open only by audition with the director. Performance of choral works with the University Symphony and Detroit Symphony Orchestra.

Music Education (MED)

350. Aesthetic and Cultural Foundations of Music Education. Cr. 2

Historical, philosophical, professional, legal and ethical considerations.

390. Directed Study. Cr. 1-2 (Max. 6)
Prereq: consent of adviser.

451. General Music in the Schools I. Cr. 3
Prereq: MUT 314, MED 350. Methods, materials and techniques for teaching in the elementary schools.

452. General Music in the Schools II. Cr. 3
Prereq: MED 451. Methods, materials and techniques for teaching in the secondary schools.

454. Instrumental Music in the Schools I. Cr. 3
Prereq: MUA 173, MUA 174, MUA 175, MUA 176, MED 350. Teaching techniques, materials and organization of instrumental music in elementary schools.

455. Instrumental Music in the Schools II. Cr. 3
Prereq: MED 454. Teaching techniques, materials and organization of instrumental music in secondary schools.

551. Specialized Music Literature for Elementary Classroom Teachers. Cr. 3
Music materials and media for use in the school classroom.

553. Music Education for General Elementary School Teachers. (ELE 503). Cr. 3
No graduate credit for music majors. Foundations and basic methods in music for the classroom teacher.

554. (DNC 544) Dance for Elementary Music Teachers. Cr. 2
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 relationships among language, music and movement provides a major focus of the course.

555. Choral Conducting and Rehearsal Techniques. Cr. 2-3
Prereq: MUA 267 or equiv. Conducting and rehearsal techniques for school, church and civic choral groups.

556. Secondary School Music Workshop. Cr. 1-3 (Max. 6)
Group participation in the study of class materials and teaching procedures for secondary music teachers.

557. Music in Special Education. Cr. 4
Teaching techniques and music materials to meet the needs of special education students.

652. Elementary School Music Workshop. Cr. 1-3(Max. 6)
Group participation in the study of class materials and teaching procedures for elementary music teachers.

653. Conducting and Operating the School Band. Cr. 2-3(Max. 6)
Prereq: consent of instructor.

654. Instrumental Music Workshop. Cr. 2-3(Max. 6)
Current problems, procedures and materials pertaining to development of the instrumental music program in the schools.

655. College Teaching Preparation in Music. Cr. 2(Max. 6)
Prereq: senior or graduate standing; consent of chairperson. Observation of instruction, class assistance and supervised instruction of undergraduate classes. Preparing lectures, quizzes and instructional material.

753. Music in Secondary Schools. Cr. 2-3
Open to all graduate students. Principles relating to the secondary school music curriculum.

754. Organization and Administration of Music in the Schools. Cr. 2-3
Open to all graduate students.

755. General Music in the Schools. Cr. 2-3
Materials and aural techniques related to listening experiences.

756. Contemporary Trends in Music Education. Cr. 2-3
Open to all graduate students. Role of music in the school. Philosophy, trends and issues in music education on all grade levels.

757. Introductory Master's Seminar. Cr. 2-3
Prereq: consent of adviser or instructor.

758. Advanced Conducting Techniques. Cr. 2-3
Prereq: MUA 268 or equiv. Structural analysis relating to rehearsal techniques and the interpretation of performance materials. Review and clarification of manual baton techniques and styles.

790. Directed Study in Music Education. Cr. 1-3(Max. 8)
Prereq: MED 757; written consent of adviser and graduate officer.

799. Master's Essay Direction. Cr. 3(3 req.)
Prereq: consent of chairperson and adviser.

851. Foundations of Music Education I. Cr. 2-3
Historical and philosophical foundations of music education; important trends, innovations and leaders in the development of music in American schools; and the influence of educational philosophers and aesthetic theories.

852. Foundations of Music Education II. Cr. 2-3
Consideration of the psychological foundations of music education; the application of learning theories to music teaching and evaluation of school music programs.

853. Instructional Technology in Music Education. Cr. 2-3
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

Chairperson: Jacob Lassner

Professor

Jacob Lassner

Associate Professor

Aleya A. Rouchdy

Assistant Professors

Tikvah S. Frymer, Ivan Starr

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 languages, 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 a 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 twenty-six credits beyond Hebrew 102. In addition, the student is required to take twelve 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 (Arabic, Aramaic, Hebrew) or (b) eleven credits beyond first year proficiency in two Near Eastern languages (Arabic, Hebrew). In addition, the student is required to take twelve 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 eleven credits beyond the first year proficiency in a foreign language (Arabic, Hebrew). In addition, the student is required to take thirty credits in elective courses including no less than six credits in each of the following: Ancient Near Eastern culture, Hebrew culture, Islamic culture.

Master of Arts

— With a Major in Near Eastern Languages

Plan A: Twenty-seven credits in course work plus a thesis.

Plan B: Thirty-four 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 fifteen 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 six credits in Aramaic or eight credits in Arabic. Under special circumstances, the student may be advised to elect six credits in cognate courses from the disciplines of history, philosophy, anthropology, sociology, and political science. He/she is expected to write a thesis or attend a seminar where he/she must show ability in using sources and in doing original research as well as demonstrate 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/her area of specialization. The student's program of study must have approval of the major adviser and must include Hebrew 782.

— 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 fifteen credits have been earned.

Degree Requirements: A student specializing in Arabic is expected to demonstrate ability in the use of Arabic sources. Under special circumstances, the student may be advised to elect six credits in cognate courses from the disciplines of history, philosophy, anthropology, sociology and political science. He/she is expected to write a thesis or attend a seminar where he/she must show ability in using sources and doing original research as well as demonstrate 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/her area of specialization. The applicant's program of study must have the approval of the major adviser.

COURSES OF INSTRUCTION¹

Arabic (ARB)

101. Elementary Arabic I. Cr. 4
Vocabulary, forms, syntax, graded readings.

102. Elementary Arabic II. Cr. 4
Prereq: ARB 101 or consent of instructor. Continuation of ARB 101.

201. Intermediate Arabic I. Cr. 4
Prereq: ARB 102 or consent of instructor. Continuation of grammar, readings in classical and modern prose.

202. Intermediate Arabic II. Cr. 4
Prereq: ARB 201 or consent of instructor. Continuation of ARB 201.

390. Directed Study. Cr. 3-6(Max. 9)
Prereq: consent of chairperson. Readings, periodic reports and consultations.

401. Advanced Arabic I. Cr. 3
Prereq: ARB 202 or consent of instructor. Continuation of intermediate grammar exercises in translations, reading in selected modern texts.

402. Advanced Arabic II. Cr. 3
Prereq: ARB 401 or consent of instructor. Continuation of ARB 401, intermediate grammar, exercises in translations, readings in selected modern texts.

501. Medieval Arabic Texts I. Cr. 3
Prereq: ARB 202 or consent of instructor. Readings of texts from representative works.

502. Medieval Arabic Texts II. Cr. 3
Prereq: ARB 501 or consent of instructor. Continuation of ARB 501.

505. Advanced Arabic Grammar. Cr. 3
Prereq: consent of instructor. Systematic review of Arabic grammar; translation from Arabic to English. Intended primarily for native speakers.

590. Directed Study. Cr. 3-6(Max. 9)
Prereq: undergrad., consent of chairperson; grad., consent of chairperson and written consent of graduate officer. Readings; periodic consultations and reports.

780. Arabic Seminar. Cr. 3(Max. 9)
Prereq: ARB 501 or consent of instructor. Selected topics.

Aramaic (ARA)

620. Biblical Aramaic. Cr. 3
Prereq: written consent of instructor. Survey of grammar and reading of texts.

621. Post-Biblical Aramaic. Cr. 3
Prereq: ARA 620. Readings in the Targumim.

¹ See page 633 for interpretation of numbering system, signs and abbreviations

Chinese (CHI)

- 101. Elementary Chinese I. Cr. 4**
Training in pronunciation, aural comprehension, oral and written expression; supervised laboratory preparation.
- 102. Elementary Chinese II. Cr. 4**
Prereq: CHI 101 or consent of instructor.
- 201. Intermediate Chinese I. Cr. 4**
Prereq: CHI 102 or consent of instructor. Review of grammar; practice in oral and written Chinese based on readings.
- 202. Intermediate Chinese II. Cr. 4**
Prereq: CHI 201. Continuation of CHI 201.
- 390. Directed Study. Cr. 3-6(Max. 9)**
Prereq: consent of chairperson. Directed readings.
- 590. Directed Study. Cr. 3-6(Max. 9)**
Prereq: undergrad., consent of chairperson; grad., consent of chairperson and graduate officer.

Hebrew (HEB)

- 101. Elementary Hebrew I. Cr. 4**
Grammar, vocabulary, graded readings, discussions.
- 102. Elementary Hebrew II. Cr. 4**
Prereq: HEB 101 or consent of instructor. Continuation of HEB 101.
- 201. Intermediate Hebrew I. Cr. 4**
Prereq: HEB 102 or consent of instructor. Review of grammar, readings in modern Hebrew texts.
- 202. Intermediate Hebrew II. Cr. 4**
Prereq: HEB 201 or consent of instructor. Continuation of HEB 201.
- 390. Directed Study. Cr. 3-6(Max. 9)**
Prereq: consent of chairperson. Readings; consultations and reports.
- 401. Advanced Hebrew I. Cr. 3**
Prereq: HEB 201 or consent of instructor. Review of grammar; composition and conversation; selected readings - from modern Hebrew.
- 402. Advanced Hebrew II. Cr. 3**
Prereq: HEB 401 or consent of instructor. Continuation of HEB 401.
- 500. Post-Biblical Texts I. Cr. 3**
Prereq: HEB 201 or consent of instructor. Selected readings of prose texts.
- 501. Post-Biblical Texts II. Cr. 3**
Prereq: HEB 500 or consent of instructor. Continuation of HEB 500.
- 507. Readings in the Bible. Cr. 3(Max. 9)**
Prereq: HEB 501 or consent of instructor.
- 590. Directed Study. Cr. 3-6(Max. 9)**
Prereq: undergrad., consent of chairperson; grad., consent of chairperson and graduate officer. Readings; consultations, reports.
- 782. Hebrew Seminar. Cr. 3(Max. 9)**
Prereq: HEB 501 or 507 or consent of instructor. Selected topics.

Near Eastern Languages and Literatures (N E)

- Knowledge of the original languages is not required for the following courses. No credit is allowed toward fulfillment of undergraduate Foreign Language Group Requirement.*
- 200. Introduction to Islamic Civilization of the Near East. Cr. 3**
Muhammad and the origins of Islam; the growth of Islamic institutions.
- 201. The Bible and Ancient Mythology. Cr. 3**
The Bible and Biblical religion in the context of its antecedents in the ancient world.
- 301. Survey of Jewish Thought. Cr. 3**
The life and thought of major Jewish thinkers seen against the background of their times; from antiquity to the present.
- 390. Directed Study. Cr. 3-6(Max. 9)**
Prereq: consent of chairperson. Readings; consultations and reports.
- 503. Great Cities of the Near East. Cr. 3**
Illustrated study of the urban centers of the ancient Near East: Mecca, Baghdad, Cairo, Jerusalem and others.
- 533. (ANT 533) Arab Society in Transition. Cr. 3**
Prereq: ANT 210, SOC 200 or consent of instructor. Distinctive social and cultural institutions and processes of change in the Arab Middle East. Regional variations; background and discussion of current political and economic systems and their relations to international systems.
- 551. History of the Civilization of the Ancient Near East I. Cr. 3**
History, law and religion based on source readings in translation; from the beginnings to the Hellenistic period.
- 552. History and Civilization of the Ancient Near East II. Cr. 3**
Prereq: NE 551 or consent of instructor. Continuation of NE 551.
- 554. History and Civilization of Ancient Israel I. Cr. 3**
Historical background of Biblical history and religion as illustrated by modern literary and archaeological discoveries.
- 555. History and Civilization of Ancient Israel II. Cr. 3**
Prereq: NE 554 or consent of instructor. Continuation of NE 554.
- 556. Development of Biblical Religion I. (ANT 556). Cr. 3**
Religion of Ancient Israel as it developed in the Near East. Comparison of Israel's beliefs and practices with those with which Israel was familiar; similarities and differences.
- 557. Development of Biblical Religion II. (ANT 557). Cr. 3**
Prereq: NE 556 or consent of instructor. Continuation of NE 556.
- 565. History of the Jews I. Cr. 3**
From the Hellenistic period to the seventh century.
- 566. History of the Jews II. Cr. 3**
Prereq: N E 565 or consent of instructor. The middle ages and modern times.
- 568. Islamic History: The Formation of the State. Cr. 3**
History of the Near East from the death of the Prophet until the rise of the Abbasid Empire.
- 569. Islamic History: The Formation of the Empire. Cr. 3**
Prereq: NE 568 or consent of instructor. The rise of the Abbasids as a world empire with particular emphasis on their revolutionary origins.

585. Arabic Literature in Translation. Cr. 3
Survey of Arabic literature: pre-Islamic, medieval and modern.

590. Directed Study. Cr. 3-6 (Max. 9)
Prereq: undergrad., consent of chairperson; grad., consent of chairperson and graduate officer. Readings, consultations, reports.

595. History and Development of Semitic Languages. Cr. 3
Non-technical approach to the history and distribution of Western Semitic languages in the Near East area; overview of the languages and the main cultural groups of the area.

799. Master's Essay Direction. Cr. 2-3
Prereq: consent of adviser.

899. Master's Thesis Research and Direction. Cr. 2-8(8 req.)
Prereq: consent of adviser.

Asian Studies (ASN)

200. Introduction to Chinese Literature. Cr. 3
Chinese cultural and literary traditions as seen through several selected works of fiction, drama and poetry.

390. Directed Study. Cr. 3-6 (Max. 9)
Prereq: consent of chairperson. Directed readings.

505. Early Chinese Literature. Cr. 3
Philosophy, poetry, belles lettres and early fiction and drama.

506. Traditional and Modern Chinese Literature. Cr. 3
The golden age of fiction and drama, transitional and modern literature. Communist socialist-realism.

507. Topics in Chinese Literature. Cr. 3(Max. 9)
Specialized theme or topic in the Chinese literary tradition selected for study by the instructor and students.

590. Directed Study. Cr. 3-6 (Max. 9)
Undergrad. prereq: consent of chairperson; grad. prereq: consent of chairperson and graduate officer. Graduate cognate credit only. Directed readings.

PEACE AND CONFLICT STUDIES

Office: 5229 Cass Avenue

Co-Directors: Melvin Small, Max Mark and Maurice Waters

The Peace and Conflict Studies Co-Major Program links together the varieties of existing courses and research programs within the traditional disciplines that deal with this most fundamental of human problems. The program aims: (1) to integrate, in a coherent fashion, the approaches to human conflict now being presented in the University; (2) to provide a framework within which students interested in such subjects might develop tools and expertise needed for graduate work or positions in education, government and business that relate to conflict and its management; (3) to compare techniques of individual, group and societal conflict resolution that are being taught in numerous courses in the social sciences and humanities; (4) to provide opportunities for co-majors to work on projects in the community that involve conflict and its resolution.

The program is designed around four core courses, a senior seminar and eighteen credits in conflict-related elective courses, of which at least six credits must be upper-divisional. It is possible for some of the elective courses to count toward satisfaction of the requirements of the major department or to fulfill college group requirements. Depending upon the interest of the student, with the consent of the Director, other courses may be substituted for any of the core courses.

Core Requirements (15 Credits)

	<i>credits</i>
PCS 200 — Introduction to Peace and Conflict Studies.....	3
PCS 600 — Senior Seminar in Peace and Conflict Studies.....	3
<i>and any three of the following:</i>	
ECO 530 — International Economic Relations.....	4
GEG 631 — Political Geography and Geopolitics.....	4
HIS 513 — Foreign Relations of the United States Since 1920.....	3
P S 181 — World Politics.....	4
PSY 656 — Psychology of Union-Management Relations.....	3
SOC 555 — Social Movements and Collective Behavior.....	3

Electives (18 Credits)

The University offers a large number of conflict related courses from among which electives may be selected. The following are the most appropriate for the co-major; others might qualify for inclusion upon petition of the student.

Liberal Arts

	<i>credits</i>
ANT 520 — Social Anthropology.....	3
ANT 514 — Biology and Culture.....	3
ANT 618 — Theory and Problems of Emergent Countries.....	3
BIO 569 — Animal Behavior.....	3
ECO 441 — Labor Institutions.....	4
ECO 560 — Introduction to Development Economics.....	4
ECO 301 — Socialist Economic Thought.....	3
FAC 688 — New Perspectives in Human Development.....	2
GEG 400 — The World Today.....	3
GEG 617 — Physical Bases of Urban Ecology.....	3
HIS 512 — Foreign Relations of the United States to 1920.....	3
HIS 529 — American Labor History.....	3

HIS 543 — Europe in the Nineteenth Century.....	3
HIS 544 — Twentieth Century Europe.....	3
HIS 548 — Nazi Germany.....	3
PHI 524 — Special Topics in Social and Political Philosophy.....	4
PHI 527 — Philosophy of Law.....	4
P S 151 — Introduction to Political Ideologies.....	4
P S 202 — Current Issues in American Foreign Policy.....	2
P S 504 — American Political Reform Movements.....	4
P S 457 — Marxism and Socialist Thought.....	4
P S 482 — Alternative Approaches to World Order.....	4
P S 483 — International Law.....	4
P S 581 — The Conduct of American Foreign Policy.....	4
P S 583 — International Conflict and Its Resolution.....	4
PSY 130 — Psychology of Adjustment.....	4
PSY 260 — Psychology of Social Behavior.....	4
PSY 331 — Abnormal Psychology.....	4
PSY 462 — Psychology of Mass Behavior.....	3
PSY 563 — Group Dynamics.....	3
PSY 465 — Psychological Aspects of Leadership.....	3
PSY 666 — Political Psychology.....	3
SOC 202 — Social Problems.....	3
SOC 557 — Race Relations in Urban Society.....	3
SOC 410 — Social Psychology.....	3
SOC 550 — Urban and Metropolitan Living.....	3
SOC 540 — The Family.....	3
SOC 382 — Criminology: Society, Crime and the Criminal.....	3
SOC 583 — Juvenile Delinquency.....	3
SOC 546 — Sex Roles: Being Men and Women.....	3
SOC-555 — Social Movements and Collective Behavior.....	3
SOC 695 — Political Sociology.....	3
SOC 655 — Dynamics of Urban Social Action.....	3

College of Education

EDP 638 — Emotional and Social Problems of the School Child.....	3
EDP 541 — Mental Hygiene and the Problems of Education.....	2-3
EDS 662 — Sociology of Urban Schools.....	2-3
EDS 663 — Conflict and Controversy in Public Education.....	2-3
EHP 764 — Seminar: Economic and Political Policies and Education.....	2-4

College of Lifelong Learning

GSS 232 — Studies in Domestic and International Conflict.....	4
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COURSES OF INSTRUCTION¹ (PCS)

200. Introduction to Peace and Conflict Studies. (HIS 250) (P S 282). Cr. 3

Open to all undergraduate students. Introduction to the peace and conflict studies co-major. Survey, ranging from biology to international politics; conflict among animals, within the individual, the family, the neighborhood and region, the nation and global community.

201. Topics in Peace and Conflict Studies. Cr. 1-4

Special topics relating to peace and conflict studies.

600. Senior Seminar in Peace and Conflict Studies. Cr. 3

Prereq: senior standing; PCS major. Offered for undergraduate credit only. Students work on a research project relevant to concepts studied in the program.

¹ See page 633 for interpretation of numbering system, signs and abbreviations

PHILOSOPHY

Office: 767 Mackenzie Hall

Chairperson: William D. Stine

Professors

Richard B. Angell, Raymond Hoekstra (Emeritus), Alfred Stern

Associate Professors

Barbara M. Humphries, Lawrence B. Lombard, Lawrence Powers, William D. Stine, Robert J. Titiev, Robert J. Yanal

Assistant Professors

T. Michael McKinsey, Bruce A. Russell, Charlotte E. Witt

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. They contribute to the liberal education of any student, whatever his/her predominant interest, by their emphasis on clear and cogent thought, by consideration of the interrelations of fact and value, by training in logic and the methodology of inquiry, and by a study and analysis of major philosophical outlooks.
2. They supply a minor and 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 and minor for students who plan a career in such fields as the law or the ministry.

Philosophy courses satisfy the Humanities Group Requirement, except for PHI 185, 186, 520, 535, and 539, which are treated as mathematics courses in the Natural Sciences.

Bachelor of Arts With a Major in Philosophy

Students who are planning to major in philosophy or who simply wish advice or consultation concerning course offerings and programs should see the Director of Undergraduate Studies in Philosophy. The Department offers a regular major and an honors major.

Major Requirements: A candidate for the regular major must complete a minimum of eight courses in philosophy. Included among those courses must be:

1. PHI 210 (or 541 or 542 or 543) and PHI 211 (or 544 or 545 or 546) from the History

370. Philosophy of Art. Cr. 3

Classical and contemporary discussions of such issues as: What is art?, truth in art, creativity, symbolism, taste, aesthetic judgments, art forms (novel, film, music, drama, painting).

524. Special Topics in Social and Political Philosophy. Cr. 4(Max. 8)

Prereq: one philosophy course at the 200 level or above or major in political science or consent of instructor. Selected topics and readings from major social and political philosophers. Topics to be announced in *Schedule of Classes*.

527. Philosophy of Law. Cr. 4

Prereq: one philosophy course at the 200 level or above or pre-law or law student or consent of instructor. A discussion of such problems as the nature and justification of judicial decisions, the obligation to obey the law, the lawyer's professional responsibility, the enforcement of morality and the concept of a just law.

528. History of Ethics. Cr. 4

Prereq: one philosophy course at the 200 level or above or consent of instructor. A survey and discussion of historically important moral philosophers from Plato to Mill.

530. Twentieth Century Analytic Ethics. Cr. 4

Prereq: one philosophy course at the 200 level or above or PHI 232 or consent of instructor. Important twentieth century moral philosophers in the analytic tradition, such as G.E. Moore, W.D. Ross, Hare, Stevenson, Baier and Rawls.

532. Topics in Ethics. Cr. 4(Max. 8)

Prereq: one philosophy course at the 300 level or above or consent of instructor. Selected topics in normative ethics and metaethics. Topics to be announced in *Schedule of Classes*.

571. Analysis and Criticism in the Arts. Cr. 4

Prereq: PHI 370 or consent of instructor. Selected topics in the philosophy of art. Topics to be announced in *Schedule of Classes*.

783. Seminar in Aesthetics. Cr. 6(Max. 12)

Prereq: PHI 370 or consent of instructor.

784. Seminar in Ethics. Cr. 6(Max. 12)

Prereq: PHI 530 or consent of instructor.

788. Seminar in Political Philosophy. Cr. 6(Max. 12)

Prereq: PHI 524 or consent of instructor.

Philosophical Problems

240. Introduction to the Philosophy of Religion. Cr. 3

A survey of philosophical problems concerning religious belief, the meaning and justification of claims about the nature and existence of God, the problem of evil, religious experience, the concept of miracles, faith, religion and morality.

250. Philosophy and Computers. Cr. 3

Philosophical problems concerning computers and their relationships to human thinking, art, education and ethics. Appropriate computer demonstrations. No knowledge of computers is presupposed.

257. Introduction to the Philosophy of Language. Cr. 3

A survey of philosophical problems concerning such issues as the nature of meaning, vagueness, truth, metaphor, translation, the relation between language and the world, the distinction between syntax, semantics, and pragmatics.

323. Introduction to the Philosophy of Science. Cr. 3

Prereq: one course in philosophy or science major or consent of

instructor. An examination of some traditional and contemporary problems in the philosophy of science, such as the nature of scientific systems, scientific reasonings, explanation, causation, probability, the problem of induction, the differences between natural and social science.

350. Introduction to the Theory of Knowledge. Cr. 3

Prereq: one course in philosophy or consent of instructor. An examination of some traditional and contemporary problems concerning the nature of human knowledge, its scope and limits, belief, sense perception, and memory.

355. Introduction to Metaphysics. Cr. 3

Prereq: one course in philosophy or consent of instructor. An examination of some traditional and contemporary metaphysical problems, such as the nature and existence of physical objects and abstract entities, the nature of change, the relation between mind and body, and the nature of metaphysics.

360. Space, Time, and the Philosophy of Physics. Cr. 3

Prereq: one course in philosophy or natural science major or engineering major or consent of instructor. Metaphysical and epistemological problems concerning the concepts of space and time and their relation to physical theories. Topics include: our knowledge of the geometric features of the world, the existence of space, time without change, the passage of time, the philosophical foundations and implications of Einstein's Special Theory of Relativity, and the explanation of motion and the General Theory of Relativity. No previous knowledge of modern physics will be presupposed.

380. Special Topics in Philosophy. Cr. 3(Max. 6)

Prereq: one course in philosophy or consent of instructor. Special topics to be announced in *Schedule of Classes*.

523. Philosophy of Science. Cr. 4

Prereq: PHI 185 or 186 or any course at the 300 level or above from the Philosophical Problems group or consent of instructor. Intensive investigation and discussion of special topics or particular authors in the philosophy of science. Topics and authors to be announced in *Schedule of Classes*.

550. Metaphysics. Cr. 4

Prereq: any course at the 300 level or above from the Philosophical Problems group or consent of instructor. Intensive investigation and discussion of special topics or particular authors in metaphysics. Topics and authors to be announced in *Schedule of Classes*.

553. Epistemology. Cr. 4

Prereq: any course at the 300 level or above from the Philosophical Problems group or consent of instructor. Intensive investigation and discussion of special topics or particular authors in the theory of knowledge. Topics and authors to be announced in *Schedule of Classes*.

555. Philosophy of Mind. Cr. 4

Prereq: any course at the 300 level or above from the Philosophical Problems group or consent of instructor. Intensive investigation and discussion of special topics or particular authors concerned with the nature and status of the mental and theories about the mental. Topics and authors to be announced in *Schedule of Classes*.

557. Philosophy of Language. Cr. 4

Prereq: PHI 185 or 186 or 257 or any course at the 300 level or above from the Philosophical Problems group or graduate student in linguistics or consent of instructor. Philosophical problems concerning meaning, truth, and the nature of language.

560. Philosophy of Religion. Cr. 4

Prereq: PHI 210 or 240 or 350 or 355 or 543 or consent of instructor. Intensive investigation and discussion of special topics or particular authors in the philosophy of religion. Topics and authors to be

announced in *Schedule of Classes*.

563. Twentieth Century Analytic Philosophy I. Cr. 4

Prereq: PHI 185 or 186 and either 257 or any course at the 300 level or above from the Philosophical Problems group or consent of instructor. Major works, movements, and writers in the analytic tradition in the twentieth century up to the 1940s. Frege, Russell, Moore, the early Wittgenstein, Carnap. Offered in alternate years.

564. Twentieth Century Analytic Philosophy II. Cr. 4

Prereq: two courses in philosophy at the 200 level or above, including either PHI 257 or any course at the 300 level or above from the Philosophical Problems group, or consent of instructor. Major works, movements, and writers in the analytic tradition from the 1940s to the present. Quine, Austin, Ryle, the later Wittgenstein. Offered in alternate years.

575. Philosophy of Logic. Cr. 4

Prereq: PHI 185 or 186 and one other course at the 300 level or above or consent of instructor. Topics concerning such issues as the nature of logic, the relation between logic and ontology, and the relation between logic and mathematics. Topics to be announced in *Schedule of Classes*.

580. Advanced Topics in Philosophy. Cr. 4(Max. 8)

Topics and prerequisites to be announced in *Schedule of Classes*.

779. Seminar in Philosophy of Language. Cr. 6(Max. 12)

Prereq: PHI 185 or equiv. or consent of instructor.

780. Seminar in Philosophy: Special Topics. Cr. 3-5(Max. 10)

Prereq: graduate student in philosophy or consent of instructor. Open only to Liberal Arts graduate students. Topics to be announced in *Schedule of Classes*.

785. Seminar in Epistemology. Cr. 6(Max. 12)

Prereq: PHI 544 or 545 or 553 or 557 or consent of instructor.

786. Seminar in Metaphysics. Cr. 6(Max. 12)

Prereq: PHI 550 or consent of instructor.

789. Seminar in Philosophy of Science. Cr. 6(Max. 12)

Prereq: PHI 523 or consent of instructor.

Logic

520. Modal Logic. Cr. 4

Prereq: PHI 185 or 186 or consent of instructor. The logic of necessity, possibility, and other modal notions as they occur in epistemic and deontic contexts. Course counts toward the Liberal Arts Natural Science Group Requirement.

535. Logical Systems I. (MAT 535). Cr. 4

Prereq: PHI 185 or 186 or MAT 560 or MAT 542 or consent of instructor. Metaresults concerning formal systems of sentential and first-order logics; soundness, completeness; independence of axioms; introduction to recursive functions; formalization of elementary arithmetic; discussion of Godel's incompleteness theorem and Church's Theorem. Course counts toward the Liberal Arts Natural Science Group Requirement.

539. Logical Systems II. (MAT 539). Cr. 4

Prereq: PHI 535, or MAT 535 or consent of instructor. Detailed proofs of Godel's incompleteness results, Tarski's Theorem and Church's Theorem; formal axiomatic treatment of set theory and selected applications. Course counts toward the Liberal Arts Natural Science Group Requirement.

787. Seminar in Logic. Cr. 6(Max. 12)

Prereq: PHI 535 or 557 or consent of instructor.

Special Courses

487. Honors Directed Reading. Cr. 4

Prereq: philosophy honors candidate. Research on topic of honors essay and research for comprehensive examinations.

489. Honors Proseminar. Cr. 4

Prereq: PHI 487. Continuation of PHI 487.

590. Directed Study. Cr. 1-6(Max. 12)

Prereq: undergrad., consent of chairperson and instructor; grad., consent of chairperson, graduate officer and instructor. Intensive investigation by student on topic chosen by student in consultation with instructor.

799. Master's Essay Direction. Cr. 3

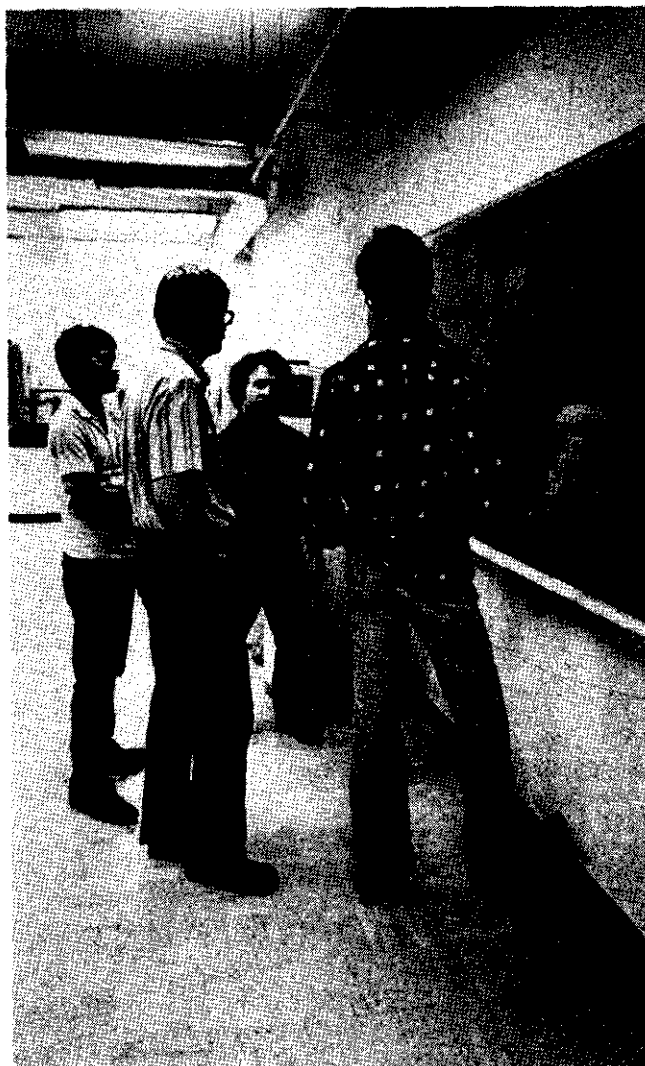
Prereq: consent of adviser.

899. Master's Thesis Research and Direction. Cr. 2-8(8 req.)

Prereq: consent of adviser.

999. Doctoral Dissertation Research and Direction. Cr. 1-16(30 req.)

Prereq: consent of doctoral adviser. Offered for S and U grades only.



PHYSICAL SCIENCE

Office: 135 Physics Research Building

Director: David M. Fradkin

Staff: Selected members 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. 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)

190. (PHY 100) Conceptual Physics Laboratory. (Lab: 2). Cr. 1
Prereq: PHS 191 if taken for three credits; written consent of instructor. No credit after PHS 191 if taken for four credits. Material fee as indicated in *Schedule of Classes*. Laboratory for PHS 191.

191. (PHY 102) Conceptual Physics: The Basic Science. (Lec: 3; Lab: 1). Cr. 3-4
Material fee \$15 if electing for four credits. The physical world; a conceptual understanding of motion, forces, energy, matter, sound, electricity, magnetism, light; includes some observational astronomy. Lectures, demonstrations and optional laboratory; laboratory is strongly recommended.

192. (CHM 100) Chemistry and Your World. (Lec: 3; Lab: 3). Cr. 3-4
Material fee \$15 if taken for four credits. For non-science majors. Facts and theories from analytical, inorganic, organic, physical, and biochemistry, and their consequences in history, politics, economics, education, and other facets of the world. When elected for four credits, satisfies the Liberal Arts natural science group requirement for a laboratory course.

193. (GEL 101) The Science of the Earth. (Lec: 3; Lab: 3). Cr. 4
Material fee as indicated in *Schedule of Classes*. 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.

210. Applied Physical Science. (Lec: 3; Lab: 2). Cr. 4
Material fee as indicated in *Schedule of Classes*. Application of basic physical laws to the analysis of simple and complex systems. Forces, motion, fluid motion, heat, electricity and application to human physiology and motion.

¹ See page 633 for interpretation of numbering system, signs and abbreviations

PHYSICS AND ASTRONOMY

Office: 135 Physics Research Building

Chairperson: David M. Fradkin

Assistant Chairperson: Robert L. Thomas

Professors

George R. Beard, William P. Beres, Henry V. Bohm, Juei-Teng Chen, Adriaan M. de Graaf, Harry H. Denman, Lawrence D. Favro, David M. Fradkin, Suraj N. Gupta (Distinguished), Yeong Wook Kim, William B. Rolnick, Alvin M. Saperstein, Melvin P. Shaw (Adjunct), Martin Stearns, Melbourne G. Stewart, Robert L. Thomas, Charles C. Wang (Adjunct)

Associate Professors

William E. Dorenbusch, Gerald L. Dunifer, Walter E. Kauppila, Patrick F. Kenealy, Pao-Kuang Kuo, Talbert S. Stein, Lowell E. Wenger

Assistant Professors

Ralph B. Alexander, Donovan M. Bakalyar, Jhy-Jiun Chang, Kai-Tai Chen (Adjunct), Iam-Choon Khoo, Jogindra Wadehra

Instructors

Mosleh-Uddin Ahmed, K. R. Padmanabhan

DEGREE PROGRAMS

Bachelor of Arts—with a major in physics

Bachelor of Science in Physics—with options in General Physics, Applied Physics and Pre-Medical 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 and Astronomy offers professional courses for students in science, engineering and pre-medical programs, as well as general courses for those who seek a knowledge of physics and/or astronomy as part of their cultural background. While the Department offers various programs within the Bachelor of Arts and Bachelor of Science curricula, the student is advised that additional possibilities exist. For instance, it is possible to have a dual major in physics and mathematics by completing the requirements for both degrees within the normal course load. Also, it is possible for a physics major to earn a secondary school teaching certificate by electing courses in the College of Education under a combined curriculum.

Physics Colloquium: The department colloquium is normally 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.

Minor in Physics: The Department of Physics and Astronomy offers a minor in physics to qualified students from other departments. The requirement for a minor consists of Physics 217 and 218 (or Physics 213 and 214) plus Physics 330 and at least two other physics courses at

the 300 level or above. Students should consult the Departmental Undergraduate Adviser for approval of the minor prior to undertaking the program.

Bachelor of Science in Physics

The Bachelor of Science program offers several options. Each option is designed to meet the needs of a particular group of students although each is flexible enough to avoid limiting the student to a particular future program. For example, a student might elect to meet the requirements of the pre-medical physics option and still go on to graduate school in physics even though that is not the primary purpose of the pre-medical option.

— Basic Requirements—All Options

1. The regular College Group Requirements *except* the foreign language requirement. (Although a foreign language is not required, French, German or Russian is recommended as preparation for graduate study.)
2. Elementary mathematics sequence—MAT 201, 202, 203 and 204.
3. Chemistry 107
4. Physics 217, 218 and 330.¹

— General Physics Option

This option is primarily for students who intend to go on to graduate study in physics. It also satisfies the requirements of industrial and governmental employers who demand a traditional education in physics.

Course requirements consist of the basic requirements above, plus MAT 507, 522 and at least 22 additional credits in physics at the 500 level or above, including two laboratory courses and including Physics 620, 660, 680 and 685.

Suggested Course Sequence

Freshman Year

Fall Semester		Winter Semester	
Chemistry 107.....	4	¹ Physics 217.....	5
Mathematics 201.....	4	Mathematics 202.....	4
² Social Science or Humanities Elective.....	4	² Social Science or Humanities Elective.....	4
² English.....	4	² English.....	4
Total:	16	Total:	17

Sophomore Year

¹ Physics 218.....	5	Physics 330.....	3
² Biology Elective.....	4	Physics 520.....	3
Mathematics 203.....	4	Mathematics 204.....	4
² Social Science or Humanities Elective.....	4	² Social Science or Humanities Elective.....	4
Total:	17	Total:	14

Junior Year

Physics 560.....	3	Physics 562.....	5
Physics 535.....	5	Physics 650.....	4
Mathematics 507.....	4	Mathematics 522.....	4

¹ Physics 213 and 214 may be substituted for Physics 217 and 218 with the permission of the Departmental Undergraduate Adviser.

² Students are responsible for satisfying college group requirements.

² Social Science or Humanities Elective.....	4	² Social Science or Humanities Elective.....	4
Total:	16	Total:	17

Senior Year

Physics 620.....	4	Physics 660.....	4
Physics 680.....	3	Physics 681.....	3
Computer Science.....	4	Computer science.....	4
Language or other Elective.....	4	Language or other Elective.....	4
Total:	15	Physics 685.....	2
		Total:	17

— Applied Physics Option

This option is intended to provide the diverse kinds of training which are required for a variety of applied fields and still provide the essential understanding of the physical foundations of those fields. It combines a thorough training in fundamental physics with sufficient flexibility for the student to study areas such as chemistry, biology, computer science, mathematics, geology or engineering. While many graduates may proceed directly into industrial positions (particularly in engineering fields) many may go on to graduate school in areas such as biophysics, electrical engineering, etc.

Course Requirements consist of the basic requirements above plus two semesters of Computer Science and at least 22 credits in physics at the 500 level or above including Physics 520, 560, 562 and 685. MAT 507 is recommended.

Suggested Course Sequence

Freshman Year

Fall Semester		Winter Semester	
Chemistry 107.....	4	¹ Physics 217.....	5
Mathematics 201.....	4	Mathematics 202.....	4
² Social Science or Humanities Elective.....	4	² Social Science or Humanities Elective.....	4
English.....	4	English.....	4
Total:	16	Total:	17

Sophomore Year

¹ Physics 218.....	5	Physics 330.....	3
Biology Elective.....	4	Physics 520.....	3
Mathematics 203.....	4	Mathematics 204.....	4
² Social Science or Humanities Elective.....	4	² Social Science or Humanities elective.....	4
Total:	17	Total:	14

Junior Year

Physics 560.....	3	Physics 562.....	5
Technical Elective.....	4	Technical Elective.....	4
Mathematics 507.....	4	Computer Science.....	4
² Social Science or Humanities Elective.....	4	² Social Science or Humanities Elective.....	4
Total:	15	Total:	17

Senior Year

Physics 680.....	3	Physics 681.....	3
Physics 535.....	5	Physics 685.....	2
Technical Elective.....	4	Technical Elective.....	4
Computer Science.....	4	Computer Science.....	4
Total:	16	Total:	13

— Pre-Medical Physics Option

This option is specifically designed for students who wish to go on to medical school. It provides a background enabling the physician to use the full potential of modern medical instrumentation. In addition to required courses in the fundamentals of physics and electronics, the student may elect to take courses which will directly benefit his/her intended medical specialty. A prospective ophthalmologist can study optics; an orthopedic surgeon, mechanics; a radiologist, atomic physics and radiation; etc.

Course requirements consist of the basic requirements above plus Biology 101*, 102*, 307* and one additional course in biology*, and Chemistry 108*, 224*, 226*, 227*, Physics 520, 560, 562 and six additional credits in physics at the 500 level or above.

Suggested Course Sequence

Freshman Year

Fall Semester

Chemistry 107.....	4
Mathematics 201.....	4
¹ Social Science or Humanities Elective.....	4
¹ English.....	4
Total:	16

Winter Semester

Chemistry 108.....	5
Mathematics 202.....	4
² Physics 217.....	5
¹ English.....	4
Total:	18

Sophomore Year

² Physics 218.....	5
¹ Social Science or Humanities Elective.....	4
Biology 101.....	4
Mathematics 203.....	4
Total:	17

Physics 330.....	3
Physics 520.....	3
Biology 102.....	4
Mathematics 204.....	4
Total:	14

Junior Year

Physics 560.....	3
Chemistry 224.....	4
Biology 307.....	4
¹ Social Science or Humanities Elective.....	4
Total:	15

Physics 562.....	5
Chemistry 226.....	4
Chemistry 227.....	2
¹ Social Science or Humanities Elective.....	4
Total:	15

Senior Year

Physics 535.....	5
Biology Elective.....	4
Mathematics 507 or other Elective.....	4
¹ Social Science or Humanities Elective.....	4
Total:	17

Physics 685.....	2
Physics 650.....	4
Computer Science.....	4
¹ Social Science or Humanities Elective.....	4
Total:	14

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 a community college

* As defined by medical school admission requirements. The student should consult the Liberal Arts Advising Office for any possible changes in pre-medical requirements.

¹ Students are responsible for satisfying College Group Requirements.

² Physics 213 and 214 may be substituted for Physics 217 and 218 with permission of the Departmental Undergraduate Adviser.

but whose background in physics and mathematics does not complement the content, level, or scheduling of remaining course requirements well enough to permit completion of the Bachelor of Science degree curriculum 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 educational background;

(c) students who decide relatively late in their college careers (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/her first year in graduate school making up deficiencies in his or her 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.

Degree Requirements:

- The regular College Group Requirements including the language requirement (French, German or Russian is recommended).
- (a) Elementary Mathematics Sequence: MAT 201, 202, 203, 204.
(b) Intermediate Mathematics Course: MAT 507.
- Chemistry 107
- Physics 217, 218, 330. A student may present credits in Physics 213, 214 or equivalent, in lieu of Physics 217 and 218, with the consent of the Departmental Undergraduate Adviser.
- At least fifteen additional credits in physics at the 500 or 600 level including 520 and 560.

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.

Master of Arts and Master of Science

The Department offers programs leading to the degrees of Master of Arts and Master of Science. Both curricula are designed to provide maximum flexibility in individual student programs. They are designed to accommodate students with varying undergraduate backgrounds by allowing them to make up any deficiencies in their undergraduate education as part of the graduate degree program. For some, the Master's degree will be used as part of a continuing Ph.D. program. For others, it will be a terminal degree leading to employment in government laboratories, industrial programs, hospitals, teaching positions, etc. In this context, it should be pointed out that both Master's curricula allow the possibility of interdisciplinary work in applied areas. Up to half of the student's course work may be in another department (or departments) so that programs in physics and biophysics, physics and geophysics, physics and chemical engineering, etc., may easily be accommodated. All programs require the approval of the Departmental Graduate Adviser.

Admission: Prerequisite preparation should include a minimum of general college physics with laboratory (equivalent to Physics 217, 218), fifteen credits in the intermediate physics courses (equivalent to Physics 520, 560, 562, 620, 660, 680, 681); mathematics through MAT 507 and Chemistry 107 or equivalent courses.

Candidacy must be established by the time twelve credits have been earned.

Degree Requirements—Master of Arts:

1. Twenty-nine credits in course work, plus an essay.
2. At either the graduate or undergraduate level, Physics 535, 562, 620, 650, 660, 680, 681 or equivalent courses.
3. Six credits in physics on the 700 level or above, exclusive of Physics 790, 799, 899.
4. A departmental final oral examination is required of all candidates.

Degree Requirements—Master of Science:

1. Twenty-four credits in course work, plus a thesis.
2. The other requirements are the same as the requirements (2) through (4) 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 of:

- (a) Mechanics and Dynamics
- (b) Electromagnetic Theory
- (c) Quantum Physics
- (d) Thermodynamics and Statistical Mechanics

The following courses or their equivalent will be required of all candidates for the Ph.D. degree in physics: Physics 705, 706, 710, 711, 720, 740, 741, 750, 760, 761.

In addition, students specializing in experimental or theoretical solid state physics will be required to take Physics 755, 756.

Students specializing in experimental or theoretical nuclear physics will be required to take Physics 880.

Students specializing in any branch of theoretical physics will be required to take either Physics 742 or Physics 885-886.

On petition of the student and his/her 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 two courses open only to graduate students. Finally, the student must submit an acceptable dissertation.

Ph.D. Qualifying Exam: 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 capacity for creative thought. The examination will be part oral and part written. The student must submit a plan of work prior to taking this examination.

The student is referred to the graduate information section of this bulletin beginning on page 18 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 eight credits per semester 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 chairperson.

Videotaped Courses

All advanced physics lecture courses (520 and above) are offered on videotape to accommodate working students. The lecture tapes may be viewed at any time convenient for the student during days, evenings or Saturdays. The instructors will be available for consultation either by telephone or in person during normal business hours and also by appointment. Examination times are arranged with the instructor.

The videotape lectures make it possible for the working student to complete the Bachelor of Arts, Bachelor of Science in Physics, or Master of Arts degrees with a minimum of conflict with his/her work schedule. Some of the classes for the Master of Science and Doctor of Philosophy degrees can be taken by videotape; however, a period of full-time study is usually needed to fulfill the thesis research requirements of these degrees.

Courses for Non-Science Majors

The Department of Physics and Astronomy offers several courses designed primarily for non-science majors. Only minimal high school mathematics preparation is needed for these courses. The courses are AST 201, PHY 102, 104, 106, 310 and 502. The laboratories connected with AST 201, PHY 102, and PHY 310 satisfy the natural science laboratory group requirements.

COURSES OF INSTRUCTION¹

Astronomy (AST)

201. Descriptive Astronomy. (Lct: 4; Lab: 2). Cr. 4-5
Optional lab; material fee \$15 if electing lab; lab includes 4 late evening viewing sessions. Introduction to the concepts and methods of modern astronomy; the solar system, stars, galaxies, and cosmology; including recent discoveries about the planets, moon, sun, pulsars, quasars, and black holes. Only a minimal knowledge of high school mathematics is needed.

211. Descriptive Astronomy Laboratory. (Lab: 2). Cr. 1
Prereq: AST 201 if taken for four credits; written consent of instructor. No credit after AST 201 if taken for five credits. Material fee as indicated in *Schedule of Classes*. Laboratory for AST 201.

501. Astrophysics and Stellar Astronomy. (PHY 501). (Lct: 3). Cr. 3

Prereq: PHY 214 or PHY 218, MAT 201, or consent of instructor. Introduction to astrophysics and stellar astronomy for students in science, engineering and mathematics; emphasis on applications and tests of physical principles (i.e. atomic spectroscopy, nuclear physics, quantum mechanics, and the general theory of relativity); stellar interiors and evolution; origin of the elements and electromagnetic and

¹ See page 633 for interpretation of numbering system, signs and abbreviations

videotape section. Microscopic and macroscopic Maxwell's equations, special relativity, Lagrangian and Hamiltonian formulation of EM theory, energy-momentum tensor, conservation laws, radiation, scattering, applications.

761. Electromagnetic Theory II. Cr. 3

Prereq: PHY 760. Material fee \$15 for videotape section. Continuation of PHY 760.

790. Directed Study. Cr. 1-3(Max. 6)

Prereq: written consent of adviser, instructor, chairperson 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 study material not covered in regular courses.

796. Research in Physics. Cr. 1-4 (Max. 12)

Prereq: consent of adviser; written consent of chairperson of graduate studies committee.

799. Master's Essay Direction. Cr. 1-3 (3 req.)

Prereq: consent of adviser.

855. Solid State Physics III. Cr. 3

Prereq: PHY 741 and 756. Material fee \$15 for videotape section. Advanced band theory and applications, electrical and thermal conductivity, superconductivity, current problems of interest.

880. Nuclear Physics. Cr. 4

Prereq. or coreq: PHY 741 or consent of instructor. Static electric and magnetic moments, bound properties of the N-P system, nuclear interactions, saturation properties, exchange forces, isospin, electromagnetic transitions, nuclear models, scattering, nuclear reactions.

885. Quantum Theory of Fields I. Cr. 2

Prereq: PHY 741. Material fee \$15 if electing videotape sections. Principles of quantum field theory. Quantum electrodynamics and its applications. Introduction to strong, weak and gravitational interactions.

886. Quantum Theory of Fields II. Cr. 2

Prereq: PHY 885. Continuation of PHY 885. Materials fee \$15 for videotape sections.

891. Special Topics. Cr. 1-3(Max. 12)

Prereq: consent of instructor, adviser and chairperson of graduate studies committee. Topics and prerequisites for each section to be announced in *Schedule of Classes*. More than one topic may be elected in a semester.

895. Colloquium. Cr. 1

Offered for S and U grades only. Must be elected every semester by all graduate physics students. Lectures given by visitors, graduate staff and advanced graduate students.

899. Master's Thesis Research and Direction. Cr. 2-8(8 req.)

Prereq: consent of adviser.

999. Doctoral Dissertation Research and Direction. Cr. 1-16

Prereq: consent of doctoral adviser. Offered for S and U grades only.

POLITICAL SCIENCE

Office: 856 Mackenzie Hall

Chairperson: Bryan D. Jones

Professors

Philip R. Abbott, Pi-chao Chen, Edward L. Cushman, Rondal G. Downing, Otto Feinstein, Theodore B. Fleming, Jr., Louis L. Friedland (Emeritus), Wesley L. Gould, Donald S. Hecock (Emeritus), Bryan D. Jones, Max Mark (Emeritus), Charles J. Parrish, Henry J. Pratt, Maurice M. Ramsey (Emeritus), Murray B. Seidler, Jorge Tapia-Videla, C. Dale Vinyard, Maurice Waters

Associate Professors

James C. Dick, Charles D. Elder, Ray E. Johnston, Robert W. Miller, Alfred M. Pelham (Emeritus), Wilbur C. Rich

Assistant Professors

Lynn W. Bachelor, Richard C. Elling, Roy B. Flemming, Patrick G. Grasso, James A. Jarvis, William O. Jenkins, Jr.

Lecturer

Richard Wang

DEGREE PROGRAMS

Bachelor of Arts—with a major in political science

Bachelor of Public Affairs

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 department offers three options through which students may satisfy the University American Government requirement. These include Political Science 101, Political Science 103 and the combination of Political Science 201 and 202. These courses, as well as all others offered by the department, also may be used to satisfy the social science group requirement of the College.

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, criminal justice, 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, research and staff roles in citizen 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.

Awards

The Tudor Award is given annually for the best paper or essay written by an undergraduate in a Political Science course.

The Stephen Sarasohn Award is given annually to the outstanding graduating senior majoring in political science.

Bachelor of Arts

Political science majors are afforded the opportunity to develop a program of study that is sensitive to their particular interests and career goals. The major may be used to structure a broad general program or a highly concentrated and specialized one. Possible areas of concentration include American government and politics, public law, urban politics, public policy, public administration, political theory, comparative politics and international relations. In developing their programs, majors and prospective majors should consult with the political science undergraduate adviser.

Major Requirements: A political science major must satisfactorily complete at least thirty credits of course work in the department. For co-majors, a minimum of twenty-four credits is required. In both cases, this course work must include:

1. One introductory course at the 100-level.
2. One course in each of *at least two* of the following areas: American politics/public law (courses numbered with a second digit of 0 or 1), urban (courses numbered with a second digit of 2), public policy/public administration (numbered with a second digit of 3 or 4), political philosophy (numbered with a second digit of 5) and international relations/comparative politics (numbered with second digits of 7 or 8).
3. At least four courses at the 300 level or higher.

While not required, majors - especially those contemplating graduate/professional study - are encouraged to include P S 266 or 663 in their undergraduate programs.

Students wishing to apply transfer credits toward the major should consult the political science undergraduate adviser regarding departmental policies and restrictions on the use of these credits.

Pre-Law Curriculum: Political science provides a useful major for students who anticipate applying to law school. Such students should take Political Science 311, 510, 511 and 512. The department also recommends that pre-law students take a number of courses in

American government and public policy (numbered with second digits of 0 and 4 respectively). In developing a specific program of study, students should consult the department's pre-law adviser. (See also the suggested pre-law curriculum in the Liberal Arts Undergraduate Curricula section of this bulletin, page 227.)

Departmental Honors: Bachelor of arts majors with strong academic records are encouraged to pursue departmental honors. To be eligible to enter the honors program, a major must have a cumulative h.p.a. of 3.3 (3.4 for those who have not taken all of their course work at Wayne State University). To graduate with honors, students must:

1. Maintain a 3.3 (or 3.4) h.p.a.
2. Take P S 492 - Senior Honors Seminar.
3. Under the direction of one or more members of the Department, complete a senior honors paper (P S 495).
4. Complete thirty-two credits of Political Science course work. Credits earned in the Seminar and for the paper count toward this total.

Students interested in participating in the program should contact the Department undergraduate adviser no later than the second semester of their junior year.

Minor Requirements: Students majoring in other fields may obtain a minor in political science. A minor consists of a minimum of eighteen credits of course work. This includes P S 101 or 103. A minimum of fourteen of the eighteen credits must be in courses numbered 200 or above. Information on combinations of courses which emphasize particular subfields of political science (public administration, urban politics, public policy, international affairs, etc.) is available from the Department's Undergraduate Adviser. Also available is information on courses of particular relevance to such majors as economics, journalism, history, sociology, psychology, philosophy, criminal justice, or urban planning. A suitable sequence for pre-law students has also been identified.

Bachelor of Public Affairs

The Bachelor of Public Affairs (B.P.A.) degree program prepares qualified students for professional and technical careers in the public service or for advanced study in public affairs and administration, the social sciences and related disciplines.

The program is a structured professional curriculum that builds on the foundation of a general liberal arts education. The curriculum incorporates the fundamentals of social science theory and applications of that theory to public management and policy analysis concerns. The B.P.A. also equips students with skills needed in responsible positions in city, county, state and national government, or in other public and non-profit agencies. Internship or co-op work-study experiences afford students an opportunity to test what they have learned under conditions that approximate circumstances in public service careers. Students interested in this program should consult the political science undergraduate adviser as early as possible in their college careers. Ideally, students would begin B.P.A. course work in their sophomore year.

Degree Requirements: All candidates for the Public Affairs degree must complete the following plan of study, totaling 120 credits.

1. *General education requirements (47-48 credits):* fourteen courses in liberal arts and specific skills areas.
2. *B.P.A. core courses (15-16 credits):* four courses in fundamentals of public policy making and research methods-data analysis techniques.
3. *Area of concentration (19-20 credits):* five courses in a selected area

as outlined below.

4. General Electives: 36-39 semester credits of general electives may be chosen from departments within the College of Liberal Arts or from other colleges or schools in the university, subject to the College of Liberal Arts restrictions on granting degree credit for professional or specialized courses.

General Education Requirements: Students must satisfy the following requirements, primarily in their first two years of study. Approximate credit hours earned in completion of these requirements are given in parentheses.

English (7 credits): Two courses in composition (English 102 and a 300 or higher level course in composition depending upon proficiency demonstrated in 102). Students with outstanding performance in 102 may, upon approval by the political science undergraduate adviser, substitute for the second composition course any English course involving a substantial amount of essay or report writing.

Natural and Computer Science (11 credits): Three courses in Natural Science, including Computer Science 100. Courses taken to meet this requirement must include one course in the physical sciences and one course in the biological sciences with at least one of these being a laboratory course.

Economics (6 credits): Two introductory principles courses (Economics 101 and 102).

Other Social Science (9 credits): Three social science courses taken in at least two social science areas. Political Science courses and Economics 101-102 do not count toward fulfillment of this requirement. The cognate course for the Area of Concentration (see below) may be used in partial fulfillment of this requirement.

Humanities (11 credits): Three courses, with no more than two courses taken in one department. (See Group Requirements for the College of Liberal Arts for courses that will satisfy this requirement, page 223.)

Principles of American Government (3-4 credits): Political Science 101 or 103, to satisfy the university graduation requirement.

Core Requirements for degree: Candidates for the Public Affairs degree will take one sequence of courses in the fundamentals of policy analysis and public management and another sequence in research methods and techniques of data analysis.

Fundamentals Sequence

	<i>credits</i>
P S 241 — Introduction to Public Policy	4
P S 242 — Ethics and Politics of Public Policy	4
P S 231 — Introduction to Public Administration	4

Techniques and Methods Sequence

Any introductory statistics course offered by the College of Liberal Arts (P S 663, PSY 410, ECO 410, SOC 525, or STA 102) — offered for three or four credits.

P S 446 — Techniques of Policy Analysis	4
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Areas of Concentration: In addition to the core course work, students must select at least one area of concentration and should consult with the Political Science undergraduate adviser for specific information.

Public Management

The following are required for students choosing the Public Management concentration:

Core Requirements (12 credits): P S 231, 333, and 632, dealing with basic public management processes, problems, and techniques.

Electives: One course (4 credits) selected from Political Science courses dealing with the legal-institutional context of public management.

Cognate Course: one course (3-4 credits) relating to organizational and managerial behavior, management techniques and financial management, chosen from the disciplines of accounting, economics, management, psychology and sociology.

— Public Policy Analysis

The following are required for students in the Public Policy Analysis concentration:

Core Requirements: three courses (12 credits) selected from among (P S 311, 333, 343, 506, 522, 524, 541, 544, 549, 664); courses dealing with policy development, implementation, and evaluation.

Elective: one course (3-4 credits) selected from political science courses dealing with the legal-institutional context of policy-making and implementation.

Cognate Courses: one course (3-4 credits) selected from social science offerings in the following fields: urban, transportation and housing policy; environmental and population policy; labor policy; economic, business and consumer affairs regulation; and criminal justice. Other eligible cognate courses are social science and health education courses examining the policy relevance of such population characteristics as race, ethnic origins, sex and age.

— Urban Policy and Management

Core Requirements: Three courses (P S 224, P S 231, and either P S 522 or 525) dealing with urban political systems, urban policy, and urban management.

Elective: One course (3-4 credits) selected from among other political science courses dealing with the legal-institutional context of urban policymaking and management.

Cognate Course: One course (3-4 credits) selected from social science offerings in disciplines such as urban planning, sociology, economics, geography, criminal justice, and history, relating to the problems and processes of urban policymaking and management.

— Other Concentrations

Public Management, Public Policy Analysis, and Urban Policy and Management are the only formal concentrations presently identified. With approval of the student's adviser, however, an area of concentration may be specially designed consisting of courses related to the student's particular educational and career objectives. A plan of study for such concentrations must be filed and approved before the student registers for course work in the junior year.

Internships: While not required, internships in government or public agencies provide valuable work-educational experience that enables students to relate knowledge acquired in the classroom to the world-at-large. They also provide practical training that enhances future job prospects. Academic credit may be earned for an internship through enrollment in P S 591, Political Science Internship, a course providing a means for the educational relevance of the internship by requiring interns consciously to relate theoretical and applied dimensions of their education through seminar papers and reports.

Master of Arts Plan A or Plan B

Admission: Applicants for this degree program 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 Study in Political Science*, which is available from the department on request.

Degree Requirements: Thirty credits in graduate courses, including twenty-four credits in political science, plus three credits for an essay are required. Students may choose to write a thesis for which they receive eight credits. All students must satisfy a general departmental requirement aimed at the development of basic analytic and methodological skills by successfully completing Political Science 663 (Statistics) and Political Science 766 (Research Methodology). These courses should be taken early in the student's program of study. In addition to the general requirement, students are expected to distribute their course work between a major and minor field. Students may elect a major concentration in American Government and Politics, Public Policy or Urban Politics. The minor field may be in another area of political science or in a substantive area requiring course work outside of the department. A student's program must be finalized in a *Plan of Work* that should be filed by the time the student has earned fifteen credits. The student should consult the department's graduate adviser for guidance in the development of his/her *Plan of Work* and for the specific requirements of the major concentration. A written, comprehensive examination in the major field is required. If the thesis option is elected, an oral examination on the thesis is also required.

No credit will be granted without authorization of the department's Graduate Committee for courses in Political Science taken at Wayne State University prior to formal admission to the M.A. program.

Master of Public Administration Plan B or Plan C

In this degree program, graduate study in the organization and management of government, directed field training and research are designed to prepare students for careers in public and quasi-public agencies.

Admission: Applicants for this degree program should consult the department's M.P.A. program director. Strong undergraduate preparation in the social sciences 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.

For further information, prospective applicants should consult *Policies and Procedures Governing Graduate Study in Political Science*, and *Master of Public Administration Program*, which are available from the department on request.

Degree Requirements: A minimum of thirty-six credits are required for this degree. At least twenty-seven of these credits must be earned in political science. Students without significant administrative background must meet an additional requirement of at least three credits of supervised internship over and above the minimum of thirty-six credits otherwise required. All students must satisfy the general departmental requirement of Political Science 663 (statistics)

and Political Science 766 (research methodology) and earn a minimum of eighteen credits in prescribed courses relating to the field of public management. As part of the thirty-six credits, students are also required to present a minor area of at least nine credits, which may require course work outside of political science. A student's program must be finalized in a *Plan of Work* which should be filed by the time the student has earned fifteen credits. The student should consult the department's M.P.A. program director for guidance in preparing this *Plan of Work*. A written, comprehensive examination in public administration is required.

Gerontology: A Master of Public Administration degree with a specialization in gerontology is offered by the department. Students interested in this specialization should consult the Director of the, Wayne State University Institute of Gerontology.

Master of Public Administration in Criminal Justice Plan B or Plan C

This degree program is designed to prepare students through graduate study and training for administrative positions in the criminal justice system. It combines basic training in public management with a substantive concentration in criminal justice.

Admission: Requirements for admission to this program are the same as those for the M.P.A. degree. Applicants should consult the department's M.P.A. program director.

Further information is contained in the department's *Policies and Procedures Governing Graduate Study in Political Science*, which is available from the department on request.

Degree Requirement: Thirty-six credits of graduate course work are required for this degree, plus at least three credits of supervised internship for students without significant administrative background. At least twenty-one of these credits must be earned in political science. These credits will include the general departmental requirement of Political Science 663 (statistics) and Political Science 766 (research methods). They will also include a minimum of fifteen credits earned in prescribed course work relating to the field of public management. In addition, students will take at least 15 credits of course work relating to the field of criminal justice. This work may require courses not only in political science and criminal justice, but in other departments as well. A student's program must be finalized in a *Plan of Work* which should be filed by the time the student has completed fifteen credits. The student should consult the department's M.P.A. program director for guidance in developing his/her *Plan of Work*. A written, comprehensive examination is required.

Doctor of Philosophy

Admission to the doctoral program is open only to highly qualified students. Those interested are urged to secure the pamphlet *Policies and Procedures Governing Graduate Study in Political Science* by writing to the department, and to review the regulations concerning graduate study in the Graduate School 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 for admission and financial aid are due by February 15.

The Ph.D. is a degree indicating not merely superior knowledge of political science or public administration but also intellectual initiative and the ability to design and carry out independent research and

evaluation. 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: A Ph.D. student is required to complete a minimum of ninety graduate credits, a maximum of thirty of which may be earned through the dissertation and at least eight of which must be earned outside of the Department. The student's course work will be distributed over one major and two minor fields of political science. It will also involve the development of a substantive specialization that will normally require course work outside political science. Major concentrations may be elected in Public Administration, Public Policy, or Urban Politics. Minor disciplinary concentrations may be in any of the above or in American Government and Politics. Students should consult the graduate adviser regarding the specific requirements of these disciplinary concentrations. Satisfactory completion of written and oral final qualifying examinations are a condition for candidacy.

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 School residence and course requirements, including Political Science 766 and 860.
2. Filing an approved *Plan of Work* with the Graduate School.
3. Completion of a special research skill requirement and a general statistics requirement, Political Science 663 and 664 (or their equivalents);
4. Completion of a preliminary oral qualifying examination;
5. Completion of the final qualifying examination (written and oral);
6. Approval of a Dissertation prospectus.

The Doctoral Dissertation: The doctoral candidate is required to submit a doctoral dissertation on a topic satisfactory to his/her Faculty Advisory Committee, designed to demonstrate proficiency in political science analysis, or capacity for independent and creative research, and the ability to perfect and follow through on an appropriate research or evaluation 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.

COURSES OF INSTRUCTION¹ (P S)

- 101. American Government. Cr. 4**
No credit after P S 103. Politics and functions of American governmental institutions. Policy processes and the role of citizens in the political process.
- 103. The American Governmental System. Cr. 3**
No credit after P S 101. Structure and functions of the American political system. Governmental institutions and processes.
- 200. (U S 200) Introduction to Urban Studies. (ECO 280) (GEG 200) (HIS 200) (SOC 250). 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.

201. Current Issues in American Politics. Cr. 2
Not for major credit. American political and public policy issues of current concern.

202. Current Issues in American Foreign Policy. Cr. 2
Not for major credit. Crucial issues in current foreign policy.

207. State and Local Government. Cr. 4
Overview and examination of the structure and processes of American state and local governments with a stress upon intergovernmental relations.

224. Introduction to Urban Politics and Policy. Cr. 4
Influences on politics and problems of cities, forms of local political involvement, role of local public officials, impact of state and federal policies. Overview of current issues and problems in specific policy areas.

225. Comparative Urban Politics. Cr. 4
Local government and politics abroad. Cross-national comparison of community elites and elite-mass politics dealing with urban policies, planning, development and control.

231. Introduction to Public Administration. Cr. 4
Prereq: P S 101 or 103 or consent of instructor. Governmental and administrative structures and organizations. Concepts and techniques of public management. Impact of public bureaucracies on modern society.

241. Introduction to Public Policy. Cr. 4
Prereq: P S 101 or 103. Public policy-making institutions and processes. Emphasis on theory and practice of policy formation, implementation and evaluation. Various models of political decision making.

242. Ethics and Politics of Public Policy. Cr. 4
Moral and political standards for policy-making, relation of major political and social theorists to policy issues such as economic inequality, racial and sexual discrimination, the enforcement of morals, and violence and social change.

251. Introduction to Political Ideologies. Cr. 4
Comparison of ideologies, political institutions, and economic systems. Democracy and authoritarianism, capitalism, socialism and communism contrasted.

266. Introduction to Political Science Methods. Cr. 4
Introduction to the methods of logical and scientific inquiry in political science; explanation, definition and measurement techniques, data collection and analysis.

271. Introduction to Comparative Politics. Cr. 4
Survey of major theories of comparative politics; political socialization and culture; constitutional and institutional arrangements; political processes and development.

281. World Politics. Cr. 4
Role of power, methods of resolving international conflict, economic relations between industrialized and Third World countries, multinational corporations, terrorists, and other non-state actors.

282. (PCS 200) Introduction to Peace and Conflict Studies. (HIS 250). Cr. 3
Required for the peace and conflict studies co-major. A variety of approaches to the origins, processes and resolution or management of conflict in all human systems, from the individual to the nation-state.

301. Public Opinion and Political Behavior. Cr. 4
Prereq: P S 101 or 103 or consent of instructor. Factors that shape public opinion; patterns of political participation and electoral politics. Impact of public opinion and popular participation on the political

¹ See page 633 for interpretation of numbering system, signs and abbreviations

system.

302. Political Parties and Elections. Cr. 4

Prereq: P S 101 or 103 or consent of instructor. Development, structure, functions and operations of American political parties; their electoral and governmental roles; comparison with other systems; possible reforms.

303. Interest Groups in the Political Process. Cr. 4

Prereq: P S 101 or 103 or consent of instructor. Structure, techniques and internal politics of interest groups, their roles in policy-making and relationship with other groups such as political parties, legislatures and administrative agencies.

304. The Legislative Process. Cr. 4

Prereq: P S 101 or 103 or consent of instructor. Function, structure, procedures and politics of American legislative bodies with special attention to Congress. Relationships with other political institutions, especially the executive branch, and comparisons with foreign legislative institutions.

305. Politics of the American Presidency. Cr. 4

Prereq: P S 101 or 103 or consent of instructor. Constitutional, historical, and political bases of the presidency. Influence of courts, Congress, interest groups, the news media, and personality on the office.

306. State Government and Politics. Cr. 4

A comparison of states in the United States in terms of their governmental structures, functions and response to changes in national and local relationships.

311. Politics and Local Justice. Cr. 4

Aspects of the local judicial process and interaction with political structures; judicial selection; operation of local courts in relationship with elected officials and pressure groups; discretion and bias in judicial process.

333. The Politics of Government Budgeting. Cr. 4

Prereq: P S 231. The process of budget development; political factors affecting budget decisions, and the use of the budgeting process as a device for making policy choices.

343. Bureaucracy and Public Policy. Cr. 4

Prereq: P S 101 or 103 or consent of instructor. Theory and development of modern governmental bureaucracy. Bureaucratic politics and its significance for decision making and program implementation. Normative aspects of bureaucracy, including accountability to the public and the role of bureaucrats in helping to define rational, efficient policies.

344. Science, Technology and Politics. Cr. 4

Prereq: P S 101 or 103 or consent of instructor. The impacts of science and technology on society, the response of American political institutions to those impacts, and possible political alternatives needed to deal effectively with them.

351. Authority and Rebellion. Cr. 4

Analysis of major theories of authority, freedom, and political obligation; justifications of disobedience, resistance and revolution.

352. Theories of Justice. Cr. 4

Analysis of major theories of justice; social, economic and political justice.

371. Major European Democratic Systems: Great Britain and German Federal Republic. Cr. 4

Government and politics of Great Britain and German Federal Republic. Political, social, economic, and cultural foundations of the systems; the structure and functions of institutions and political processes.

372. Major European Democratic Systems: France, Italy and Spain. Cr. 4

Government and politics of Latin European Democracies: France, Italy and Spain. Political, social, economic and cultural foundations of the systems; the structure and function of institutions and political processes.

373. Government and Politics of Canada. Cr. 4

Introduction to Canadian political institutions and processes.

381. Foreign Policies of Major Powers. Cr. 4(Max. 8)

Major issues and trends in the foreign policies of the U.S.S.R., China, Japan, and the European economic community.

407. (ECO 240) Women's Studies II: Women in American Political and Economic Life. Cr. 3

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.

429. Field Research in Urban Politics. Cr. 4

Prereq: P S 224. Seminar and research on topics in urban politics, administration and public policy in the Detroit metropolitan area. Emphasis on primary research.

446. Techniques of Policy Analysis. Cr. 4

Prereq: P S 266 and 663. Introduction to several major techniques used by policy analysts to measure and evaluate the effectiveness, efficiency, and equity of public policies and programs. Approaches and methodologies considered will include systems analysis, benefit-cost analysis, and simulation.

454. Political Theory and the Law. Cr. 4

The normative status of law; the relation of law, morality and social structures; the concept of law in political thought and its implications for public policy.

457. Marxism and Socialist Thought. Cr. 4

Review and analysis of Marxist thought in theory and practice; conflicting interpretations of Marx; non-Marxist socialist thought.

472. Politics of Modern China. Cr. 4

Survey of the decline and demise of the Confucian socio-political order; the origins and rise of Chinese Communism; post-1949 political developments and foreign policy.

473. Government and Politics of the Near and Middle East. Cr. 4

Political forces, governmental institutions, social and economic problems, strategic significance of selected countries.

474. Government and Politics of Africa. Cr. 4

Sociopolitical and economic change, nation-building, pan-Africanism and their relation to African political and governmental systems. Special attention to sub-Saharan Africa; emphasis on recently emerging, independent nations of the region.

475. Government and Politics of the Soviet Union. Cr. 4

Social, economic and political-administrative institutions of the Soviet Union. Soviet Union in world affairs.

476. Government and Politics of Eastern Europe. Cr. 4

Process of Soviet domination, impact of polycentrism, political institutions and processes of representative East European countries.

482. Alternative Approaches to World Order. Cr. 4

Comparison of the approach to world order which stresses power politics and military alliances with newer possibilities of obtaining world peace through functionalism. International organizations, world courts, common markets, multinational corporations, and world government models such as world federalism.

483. International Law. Cr. 4

Relation between international law and politics, historical survey of doctrines of law, consensus and disagreement on legal principles.

490. Directed Study. Cr. 1-4

Prereq: consent of chairperson and undergraduate adviser.

492. Senior Honors Seminar. Cr. 4

Prereq: admission to political science honors program, senior standing; others must have minimum 3.3 h.p.a. and written consent of undergraduate adviser. Bibliographic and data resources for political science research. Examples of contemporary political science research including presentations of ongoing work by departmental faculty. Development and defense of proposal for senior honors paper and completion of preliminary literature review and annotated bibliography.

495. Senior Honors Paper. Cr. 2

Prereq: admission to political science honors program; P S 492. Completion of an extended examination of a topic or research question in political science, under the direction of one or more members of the departmental faculty.

504. 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.

505. Ethnicity and Politics. Cr. 4

Prereq: P S 101 or 103 or consent of instructor. Politics and policy issues in relation to multi-ethnic and multi-racial societies with emphasis on Detroit; inter-urban and international comparisons.

506. Comparative American State Politics and Policy. Cr. 4

Prereq: P S 101 or 103 or 207 or 306 or consent of instructor. Examination of the variation in the policy outcomes of American state political systems. The impact of state social, economic and political characteristics on the nature of state policies. The impact of nonstate governments on state policy processes and outcomes.

510. American Legal Systems and Processes. Cr. 4

Analysis of the institutional structure, processes and policy-making of the United States, including the recruitment of lawyers and judges, the influence of legal rules on policy-making, and selected areas of judicial policy-making.

511. Constitutional Law. Cr. 4

Prereq: P S 510 or consent of instructor. Examination of the power of judicial review, barriers to court review, distribution of powers in the national government, federal-state relations, federal-state power to regulate and tax interstate commerce, and protection of property through the due process clause.

512. Constitutional Rights and Liberties. Cr. 4

Prereq: P S 510 or consent of instructor. The Bill of Rights and the Fourteenth Amendment's due process and equal protection clauses, including rights of criminal defendants, freedom of speech and religion, race and sex discrimination.

522. Issues in Urban Public Policy. (U P 515). Cr. 4

Prereq: P S 224. No graduate credit in political science. Examination of influences on urban policy formation and implementation. Problems of service distribution, policy impacts and policy evaluation in urban areas. Review of specific policies and programs.

524. Politics of Policing. Cr. 4

The allocation of police resources, problems of discretion, corruption, administrative control and other aspects of policing in relationship to the political system.

525. Urban Management. (U P 525). Cr. 4

Prereq: P S 224 and 231 or consent of instructor. No graduate credit in political science. Public administration in urban settings with focus on: program development-implementation, emphasizing community and economic development; public facilities planning; land use controls and management of growth or decline; and project, program and public services.

527. Local Government in Canada. Cr. 4

Examination of various local government systems in Canada, experiments with different types of regional government in Ontario and other provinces, provincial-local relations, and the role of councils, chief executives, and chief administrative officers in policy-making, land use planning, and the delivery of services. Comparisons with American methods of handling similar problems.

533. Theories of Bureaucracy. Cr. 4

Major theories of the nature of rational organization and its impact upon society.

541. Politics of Economic and Business Regulation. Cr. 4

Prereq: P S 101 or 103 and ECO 102. Policy-making and implementation problems of various forms of regulation, including the role of the courts in regulation. Examination of selected regulatory problems such as pollution, antitrust, energy, and consumer protection.

544. Politics of the Elderly. Cr. 4

Prereq: P S 101 or 103. Analysis of age-based political behavior as reflected in public opinion, voting, and political organization; reference to special governmental programs and agencies serving the aged.

549. Topics in Public Policy. Cr. 4(Max. 8)

Examination of selected areas of public policy, focusing on matters of national and/or international importance. Topics vary to include such policies as those relating to the environment, health, population, and social welfare. Topics to be announced in *Schedule of Classes*.

551. American Political Thought. Cr. 4

America's distinctive contributions to political thought; history of the liberal idea in America, including challenges from other ideologies.

577. Government and Politics of Latin America. Cr. 4

Political, social, economic and cultural foundations of the systems, the functions, and the structure of institutions and political processes in Latin America.

581. The Conduct of American Foreign Policy. Cr. 4

Shaping and administering United States foreign policy; influences of Congress and interest groups on the White House; secrecy; and the foreign service.

583. International Conflict and Its Resolution. Cr. 4

Types of international conflict and such methods of resolution as negotiation, mediation and other third-party procedures.

584. The Politics of Disarmament. Cr. 4

Arms control; successes and failures analyzed from perspectives of history, sociology, psychology and political science. Differences between United States and U.S.S.R.

591. Political Science Internship. (U S 602). Cr. 1-4(Max. 6)

Prereq: consent of undergraduate adviser. Open only to political science majors or minors, urban studies co-majors, or students with twelve credits or more in political science. Internship in a public or quasi-public organization, agency, civic or voluntary group, or campaign organization. Collateral reading, written work and arranged conferences with faculty supervisor.

593. Public Use Data and Information Systems. (GEG 593) (SOC 593) (U P 620). Cr. 4

Prereq: introductory social science course. Data and information systems useful in social science; emphasis on federal sources, including decennial and special censuses. Applications in specific disciplines. Familiarity with standard routines for computer retrieval/analysis, geocoding, and indicator construction.

599. Special Topics in Political Science. Cr. 1-4

Prereq: P S 101 or 103, consent of instructor. Open only to juniors and seniors. Topics to be announced in *Schedule of Classes*.

606. (PSY 666) Political Psychology. Cr. 3

Prereq: PSY 101 or PSY 102 or consent of instructor. Cognitive and emotional factors - loyalty, aggression, leadership, propaganda - as they affect domestic and international politics. Biographies and public opinion data.

632. Organizations and Their Performance. Cr. 3

Prereq: P S 231 or equiv. The meaning of organizational performance and the problems of its assessment. An examination of the nature, limits, and potential of various techniques for improving organization performance with respect to decision-making, communication, coordination, control, and compliance.

634. Employee Relations in the Public Sector. Cr. 3

Prereq: P S 231 or consent of instructor. Open only to seniors and graduate students. Examination of collective bargaining and public employee unionism in federal, state and local governments.

637. Comparative Public Administration. Cr. 3

Prereq: P S 231 or consent of instructor. Comparative analysis of major problems and issues affecting national administrative institutions, structures, processes and behavior in a cross-cultural perspective.

663. Statistical Analysis in Political Science I. Cr. 3

Use of descriptive and inferential statistics in political science and public administration. Univariate and bivariate data analysis: introduction to probability; hypothesis testing; analysis of variance; correlation and regression; applications to the study of politics, administration, and public policy.

664. Statistical Analysis in Political Science II. Cr. 3

Prereq: P S 663 or equiv. Modern statistical theory applied to the study of politics, administration, and public policy. Multivariate analysis: analysis of variance, multiple regression and correlation, path analysis, factor analysis, and discriminate function analysis.

703. American Political Processes. Cr. 3

Political socialization, public opinion, and political behavior. Role of political parties and interest groups in the political process.

704. American Governmental Institutions. Cr. 3

Examination of the functions, structure and processes of major American governmental institutions with special emphasis on the Congress and the Presidency.

705. American Political Culture. Cr. 3

Analysis of the relationship between belief systems and political action in America. Focus on patterns of social change and conflict management.

709. Topics in American Politics and Public Policy. Cr. 3(Max. 6)

Substantive or analytic topics in the study of American politics and public policy. Topics to be announced in *Schedule of Classes*.

719. Topics in Public Law. Cr. 3

Prereq: consent of instructor. Selected topics in judicial process and policy-making.

721. Approaches to the Study of Urban Politics. Cr. 3

Examination of aspects of the urban political process and the research

methods used in studying them. Topics include forms of political participation, political structures, community power and influence, strengths and weaknesses of case studies, comparative research, aggregate and individual data.

724. Urban Public Policy. (U P 765). Cr. 3

Influences on urban policy makers, policy-making and implementation, service distribution and policy impacts. Applications to substantive policy areas.

725. Seminar in Urban Administration. (U P 735). Cr. 3

Public administration in agencies with urban-related policy and program functions. Focus on: public services delivery; urban systems development; program-project design, implementation and evaluation; and intergovernmental relations.

726. Conflict and Cooperation in Intergovernmental Relations. (U P 745). Cr. 3

State and federal policy impacts, revenue sharing and other forms of intergovernmental assistance, regulations among local governments, and development of metropolitan institutions will be analyzed.

730. Public Administration in the United States. (U P 755). Cr. 3

Examination of the development of public bureaucracy in the United States and the political, legal and social forces shaping it. Emergence and evolution of public administration as both a profession and a field of study. Major normative concerns underlying public administration theory and practice. The role of public bureaucracies in the policy-making process and efforts to achieve an effective and accountable public bureaucracy.

731. Public Management Internship. Cr. 3

Prereq: twenty-one credits in public administration and consent of departmental M.P.A. program director and graduate adviser. Open only to public administration graduate students. Internship designed to supplement and integrate graduate course work with practical knowledge and experience gained from employment in a responsible capacity in a public agency.

732. Organization Theory and Behavior. Cr. 3

Study of major theoretical approaches to the structure, functioning and performance of organizations and the behavior of groups and individuals within them.

733. Politics of Taxation and Budgeting. Cr. 3

Prereq: P S 730. Politics of revenue-raising and governmental spending at local, state and national levels; types of budgets, substantive and political issues in budget formulation, evaluation of government spending and the federal budget process.

734. Public Personnel Management. Cr. 3

Prereq: P S 730. Examination of the objectives of the public personnel systems of American governmental units; analysis of current practices and techniques for recruiting, selecting, training, promoting, compensating and removing public employees. Major issues in public personnel management such as collective bargaining, equal employment opportunity, civil service reform and employee productivity and performance.

737. Advanced Organization Theory. Cr. 3

Prereq: P S 732. Conceptual and theoretical issues in the study of organizations, their internal operations and external environment.

739. Topics in Public Administration. Cr. 3(Max. 6)

Prereq: P S 730 or consent of instructor. An analysis of specialized topics in public administration of particular interest to administrators. Emphasis on problems or problem areas of current significance.

741. Policy Formation and Implementation. Cr. 3

Analysis of the processes through which public policy is made and

implemented. Examination of the factors that promote or impede the development and realization of rational, effective, and responsive public policy.

742. Normative Issues in Public Policy. Cr. 3
Exploration of the normative foundations and implications of public policy issues.

744. Public Policy and the Aged. Cr. 3
Analysis and evaluation of public policy issues involving government's role and programs in relation to senior citizens.

745. Social Science and Public Policy. Cr. 3
The role of social science in public policy formation, implementation and evaluation. Ethical, legal, management and political issues raised by policy relevant research.

746. Policy Analysis and Program Evaluation. Cr. 3
Prereq: P S 766 or equiv. Problems and techniques in the evaluation of social policies and programs in gerontology, social welfare, and other areas.

759. Topics in Political Theory. Cr. 3

766. Research Methods in Policy and Politics. Cr. 3
Prereq: P S 663 or equiv. Analytic methods in the study of politics and public policy: formulating researchable problems, use of models, research design, measurement, data collection, and automatic data processing.

769. Topics in Statistics and Methodology in Political Science. Cr. 3
Prereq: P S 664 and 766 and consent of instructor.

779. Seminar in Comparative Politics. Cr. 3(Max. 9)
Selected topics in comparative politics to be announced in *Schedule of Classes*.

781. Seminar in International Politics. Cr. 3
Contemporary theories concerning national interest, power politics, decision making, systems theory, with application of insights from sociology and psychology.

782. Seminar in International and Regional Organizations. Cr. 3
Regional and world organizations and alliances, integration successes and failures, facilitating and restricting influences.

795. Directed Study. Cr. 1-6
Prereq: fifteen graduate credits in political science; written consent of chairperson, adviser and graduate officer.

797. Research in Political Science. Cr. 1-9
Prereq: consent of doctoral committee. Open only to students admitted to doctoral study.

799. Master's Essay Direction. Cr. 1-3(3 req.)
Prereq: consent of adviser.

800. Readings in Political Science. Cr. 3(Max. 6)
Prereq: consent of adviser.

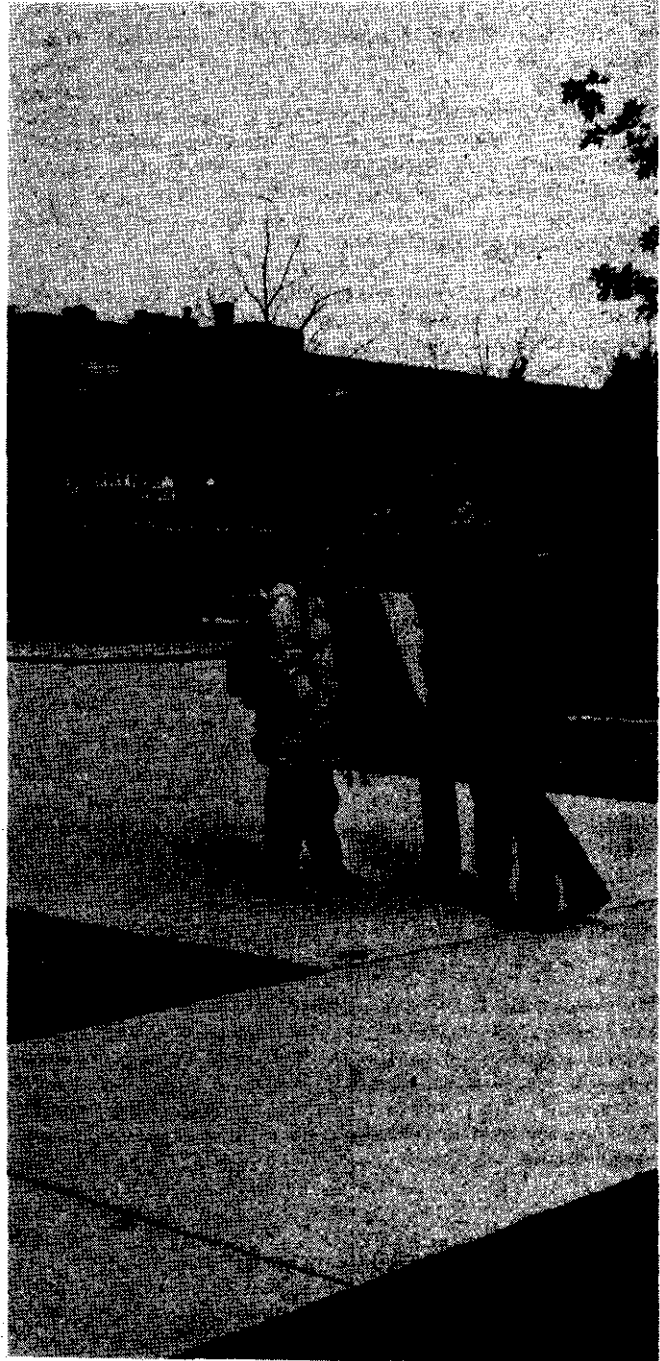
825. Seminar in Urban Political Research. Cr. 3
Prereq: P S 721. Students design and conduct research projects examining problems in urban politics, administration, or public policy in the Detroit area.

835. Seminar in Public Administration. Cr. 3(Max. 6)
Prereq: twelve credits in public administration. Examination of current trends and problems in the organization and management of public organizations.

860. Philosophic Problems of Social and Political Inquiry. Cr. 3
Required of all Ph.D. applicants. Exploration of selected problems in the philosophy of social science.

899. Master's Thesis Research and Direction. Cr. 1-8(8 req.)
Prereq: consent of adviser.

999. Doctoral Dissertation and Research. Cr. 1-16
Prereq: consent of doctoral committee. Offered for S and U grades only.



PSYCHOLOGY

Office: 71 W. Warren, Room 214

Chairperson: Sheldon Alexander

Associate Chairperson: Eli Saltz

Academic Services Officer: Dorothy M. Barker

Professors

Joel W. Ager, Sheldon Alexander, Lynn R. Anderson, David Asdourian, Alan R. Bass, C.G. Browne (Emeritus), Donald N. Elliott, Ira J. Firestone, LaMaurice H. Gardner, Arthur Kornhauser (Emeritus), Gisela Labouvie-Vief, Sheldon J. Lachman, Sheldon G. Levy, Wilson McTeer (Emeritus), Hjalmar Rosen, Gerald Rosenbaum, Eli Saltz, Carolyn A. Shantz, Charles M. Solley, Ross Stagner (Emeritus), Laurence J. Stettner, John E. Teahan, Francine Wehmer

Associate Professors

Sandor B. Brent, Kenneth S. Davidson, Joseph M. Fitzgerald, Winifred R. Fraser, Alan G. Glaros, Mark S. Goldman, Seth E. Haven (Emeritus), Kalman J. Kaplan, Cary M. Lichtman, Michael M. Reece, Annette U. Rickel, Michael K. Tanenhaus, R. Douglas Whitman

Assistant Professors

Robert F. Berman, Andres Inn, Joseph L. Jacobson, Harriet G. McCombs, Alida D. Quick, Hilary Ratner, Douglas K. Snyder, Jeffrey T. Walsh, Glenn E. Weisfeld, Alice Young

Adjunct Professors

Donald F. Caldwell (Lafayette Clinic), Bernard Chodorkoff, Marvin Hyman, Delmar L. Landen, Eli Z. Rubin

Adjunct Associate Professors

Kenneth M. Adams, Shirley I. Dobie (Lafayette Clinic), David Faigenbaum (Children's Hospital), Greta G. Fein, James L. Grisell (Lafayette Clinic), Abdel-Satta Ibrahim, Valerie Klinge (Lafayette Clinic), David Lachar (Lafayette Clinic), Richard M. Lee, Donald W. Nielsen, Herbert Silverman (Veterans Administration Hospital)

Adjunct Assistant Professors

Michael F. Abramsky, Kenneth M. Axelrad, David Benjamins, Gregory G. Brown, Joan Chodorkoff, Allan B. DeHorn, Robert R. Freedman, Charles L. Odowski, Thomas W. Keiser (Lafayette Clinic), Joan Lessen-Firestone, Ronald F. Lewis (Lafayette Clinic), Helene Lycaki (Lafayette Clinic), Janet L. Pallas, Ned Papania (Veterans Administration Hospital), Edward C. Podany, Arthur Robin, Daniel L. Rourke, William J. Rowell, Linda Sala, Mark W. Shatz, Gary W. Singleton, Theriault J. Todd, Andrew T. Yang (Oakland County Juvenile Court)

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 biopsychology, clinical, cognitive, developmental, industrial/organizational or social psychology

Also see: Master of Arts in Industrial Relations

Undergraduate training offered by the Department of Psychology serves several 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, nursing, 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. Information about positions in 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 from the Department.

Bachelor of Arts or Bachelor of Science

Major Requirements: To graduate with a major in psychology, a student must complete satisfactorily at least thirty credits (and at least nine courses) in the department of psychology, in a sequence approved by the student's major adviser. Degree requirements include:

Psychology 101 Introductory Psychology

One laboratory course chosen from the following:

Psychology 205 Psychology of Perception
Psychology 207 Psychology of Learning and Memory
Psychology 209 Cognitive Processes: Language, Thinking & Problem Solving

Three of the following six courses:

Another (second) laboratory course from the selection listed above (PSY 205, 207, 209).
Psychology 240 Developmental Psychology
Psychology 260 Psychology of Social Behavior
Psychology 402 Research in Psychology
Psychology 405 or 505 Physiological Psychology
Psychology 410 Statistical Methods in Psychology

Psychology 493 and 496 do *not* count toward the thirty credit requirement. Transfer students must complete at least fourteen credits in the Psychology Department at Wayne State University. The maximum number of credits in psychology for any major is forty-six. The Bachelor of Arts degree incorporates all of the Liberal Arts group requirements. The Bachelor of Science degree requires a minimum of sixty credits in the natural sciences, computer science, advanced logic and mathematics. Of these sixty credits a minimum of twenty-seven credits must be earned in natural science outside the field of psychology. The Liberal Arts language requirement is waived for the Bachelor of Science degree.

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 101 (Introductory Psychology), 240 (Developmental Psychology), 260 (Psychology of Social Behavior), and 331 (Abnormal Psychology). In addition, there is a Senior Honors seminar (497) in which a senior thesis is completed.

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.

325. Psychology of Women. Cr. 3

Prereq: PSY 101 or 102. Scientific issues relating to the psychological understanding of women: gender identity, psychobiology, mental health, achievement motivation, role conflict, psychology of career choice.

331. Abnormal Psychology. Cr. 4

Prereq: PSY 101 or 102. Nature and causes of various forms of abnormal behavior, including schizophrenia, depression, and neurosis, viewed from psychological, biological, cultural, developmental and historical perspectives. Diagnosis and treatment of these behavior pathologies.

335. Psychology of Personality. Cr. 3

Prereq: PSY 101 or 102. An examination of the major approaches to the study of personality. Current psychological findings in the field of personality and their implications for psychotherapy and assessment.

336. Racial and Cultural Factors in Human Psychology. Cr. 3

Prereq: PSY 101 or 102. 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.

338. Human Sexuality. Cr. 3

Prereq: PSY 101 or 102. Biological, psychological and socio-cultural aspects of human sexuality. Topics include anatomy and development, sexual behavior, and cultural influences.

339. Psychology of Marriage and Its Alternatives. Cr. 3

Prereq: PSY 101 or 102. Psychology of traditional marriage and alternative marital styles, including divorce and remarriage, dual career marriage, and cohabitation. Effect of various marital forms on individual family members. Impact of various psychological forces on the choice to marry.

343. Psychology of Infant Behavior and Development. Cr. 3

Prereq: PSY 240. Major theoretical positions and research relating to early cognitive, perceptual, emotional and social development.

344. Psychology of Child Behavior and Development. Cr. 3

Prereq: PSY 240. Developmental processes in childhood; language acquisition, cognitive development, development of peer-peer interactions.

346. Psychology of Adolescent Behavior and Development. Cr. 3

Prereq: PSY 101 or 102. Factors that promote the emergence of new relationships with parents, changes in peer relationships, increased independence, preparation for marriage and parenthood, and socioeconomic integration into the larger society. Biological and anthropological perspectives on sex roles.

350. Industrial-Organizational Psychology. Cr. 3

Prereq: PSY 101 or 102. Psychology as applied to business and industry. Major areas of industrial psychology: selection, placement, and training procedures; human factors research. Industrial social psychology: motivational and organizational research and theory.

402. Research in Psychology. Cr. 3

Prereq: PSY 101 or 102. Primarily for students interested in future graduate studies in planning and evaluation of psychological research. Critical evaluation of scientific literature and the planning and development of psychological research proposals. The range of research methods and areas in psychology.

405. Introduction to Physiological Psychology. Cr. 3

Prereq: PSY 101 or 102. No credit after PSY 505. 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.

407. Psychology of Drugs and Behavior. Cr. 3

Prereq: PSY 101 or 102. The effect of drug action on the nervous system and behavior. Subjective effects of drugs; use of drugs as tools in the study of behavior. Use and misuse of drugs in society.

410. Statistical Methods in Psychology. Cr. 4

Prereq: PSY 101 or 102 or consent of instructor for non-psychology majors. Primarily for psychology majors. 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.

411. Introduction to Psychological Tests. Cr. 3

Prereq: PSY 101 or 102. Material fee as indicated in *Schedule of Classes*. Typical tests 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.

412. Ethology and Comparative Psychology. Cr. 3

Prereq: PSY 101 or 102. Material fee as indicated in *Schedule of Classes*. Comparison of psychological processes in organisms; emphasis on vertebrates, especially mammals. Emphasis on species-typical behavior.

417. Psychology of Music I. Cr. 3

Prereq: PSY 101 or 102. 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.

418. Psychology of Music II. Cr. 3

Prereq: PSY 417. Open only to music therapy majors or psychology majors. Basic research concepts and experimental methods in psychology of music research. Practical training in conducting experimental research of musical behavior.

431. Psychological Disorders of Children. Cr. 3

Prereq: PSY 101 or 102. Points of view, methods of study and research findings regarding psychopathology in children.

432. Introduction to Clinical Psychology. Cr. 3

Prereq: PSY 101 or 102. An introduction to the methods, rationale, and empirical foundations of clinical psychology. Issues in the assessment and treatment of psychopathology.

437. Behavior Modification: Theory and Applications. Cr. 3

Prereq: PSY 101 or 102. Critical examination of the behavioral approach to the theory, assessment, and treatment of problem behavior in normal and abnormal groups.

458. Consumer Psychology. Cr. 3

Prereq: PSY 101 or 102 and junior or senior standing. Psychological theory and research relevant to consumer behavior. Relationships among marketing research, product design, selling and advertising. Stress on research design and sampling.

462. Psychology of Mass Behavior. Cr. 3

Prereq: PSY 101 or 102. 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.

464. Psychology of Attitudes and Interpersonal Attraction. Cr. 3

Prereq: PSY 101 or 102. Nature and significance of attitudes, opinions, beliefs. Structure and functions of attitudes on methods of

change.

465. Psychological Aspects of Leadership. Cr. 3

Prereq: PSY 101 or 102. Problems of leadership; functions and duties of leaders, executives. Surveys and methods of study utilized to train and select leaders.

467. Environmental Psychology. Cr. 3

Prereq: PSY 101 or 102. Research and theoretical perspectives on the influence of environmental factors on social behavior.

490. Directed Study and Research. Cr. 2-4(Max. 9)

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.

493. Field Study. Cr. 3(Max. 6)

Prereq: two courses in psychology. Students must register for two semesters in order to receive credit. 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. Agency placement contingent upon appropriate background and training in psychology.

495. Women's Studies III: Women in Contemporary Society. Cr. 3

Prereq: ENG 291 or HIS 377 and ECO 240 or P S 407; 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.

496. Special Projects. Cr. 2-3(Max. 9)

Prereq: two courses in psychology; written consent of instructor. Offered for S and U grades only. Departmental assignment to special projects such as tutoring introductory courses.

497. Senior Honors Seminar I. Cr. 3

Prereq: psychology major, twelve 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. Design of an individual research project.

498. Senior Honors Seminar II. Cr. 1-3

Prereq: PSY 497. Research project continuation.

499. Special Topics in Psychology. Cr. 3(Max. 6)

Prereq: PSY 101 or 102. Topics of current interest to be announced in *Schedule of Classes*.

500. History of Psychology. Cr. 3

Prereq: PSY 101 or 102. Origin and development of psychology as subject matter and as science.

505. Physiological Psychology. Cr. 3

Prereq: PSY 101 or 102. No credit after PSY 405. 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.

506. Laboratory in Physiological Psychology. Cr. 3

Prereq: PSY 405 or 505 or consent of instructor. Material fee as indicated in *Schedule of Classes*. Outline of gross neuroanatomy, basic experiments in physiological psychology utilizing brain lesions, chronic electrode implantations in small animals, and measurement of human autonomic responses.

507. Physiological Bases of Motivation, Learning and Memory. Cr. 3

Prereq: PSY 405 or 505 or consent of instructor. Recent research on brain stimulation, brain lesions and biochemical influences which

affect human and animal behavior.

528. Psychoanalytic Theory. Cr. 3

Prereq: three courses in psychology. Theories, principles, concepts and applications as developed by Freud and his followers in contemporary times.

535. Assessment of Personality. Cr. 3

Prereq: PSY 101 or 102; 331. Background, development, and application of objective, projective, and behavioral techniques in the assessment of personality.

549. The Aging Individual in Society. Cr. 3

Prereq: PSY 101 or 102. 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.

554. Motivation in the World of Work. Cr. 3

Prereq: PSY 101 or 102 and junior or senior standing 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.

563. Group Dynamics. Cr. 3

No credit toward graduate major in psychology. Prereq: PSY 260 or 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.

567. Psychology of Interpersonal Communications. Cr. 3

Prereq: PSY 101 or 102. Theoretical models of interpersonal communication; development of skills in process analysis of interpersonal conflict and communication at the verbal and non-verbal level.

568. Social Psychology of Personality. Cr. 3

Prereq: PSY 101 or 102. 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.

606. Sensory Processes. Cr. 3

Prereq: PSY 405 or 505 or written consent of instructor. Advanced study of physiological mechanisms and psychological processes involved in sensory and perceptual experiences; laboratory work.

609. Higher Mental Processes. Cr. 3

Prereq: PSY 101 or 102. Distinctiveness of human thought processes considered from theoretical and experimental viewpoints. Comparative and developmental approach; focus on problems and issues.

612. Laboratory in Ethological Methods. Cr. 3

Prereq: PSY 412 or consent of instructor. Material fee as indicated in *Schedule of Classes*. Ethological methods of behavior study; consideration of different observational techniques. Study of children, adults and small animals in the laboratory and zoo.

616. Use of Computers in Psychological Research. Cr. 3

Prereq: PSY 410. Computer applications in current psychological research. Not a course in computer programming; prior training recommended but not required.

641. Psychological Development of Symbolic Processes. Cr. 3

Prereq: PSY 240 or equiv. Theory and research on the development of symbolic processes. Phylogenetic and ontogenetic aspects of myth, magic, religion, scientific theory-making, art, language and

tool-making are integrated within a single theory of human symbolic processes.

642. Psychological Development in Infancy. Cr. 3

Prereq: one course in developmental psychology. Not open to psychology graduate students. Comparison of learning theory, ethological, and cognitive-developmental (Piagetism) explanations of infant development. Emphasis on empirical studies that have tested these theories. Empirical pilot study research paper required.

643. Psychological Problems in Development in Childhood. Cr. 3

Prereq: PSY 240. Introduction to the relation between normal and atypical development during childhood; common behavioral disorders, such as: aggression, anxiety, dependency, and school phobia.

649. Developmental Psychology of Death, Dying and Lethal Behavior. Cr. 3

Prereq: PSY 101 or 102. 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.

653. Organizational Psychology. Cr. 3

Prereq: PSY 350 or 260, or graduate standing or written consent of instructor. Application of principles of social psychology to industrial phenomena. Parameters of organization and criteria of effectiveness: profitability, morality. Classical theories of organization. Theory and applications of power, interaction, conflict, and decision to industrial corporations and unions.

656. Psychology of Union-Management Relations. Cr. 3

Prereq: PSY 350 or graduate standing or consent of instructor. Perceptual and motivational factors influencing behavior of workers, executives, union officers. Psychological factors in strikes: principles relevant to union-management cooperation.

664. Social Perception. Cr. 3

Prereq: junior or senior standing. 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.

666. Political Psychology. (PS 606). Cr. 3

Prereq: PSY 101 or 102. Cognitive and emotional factors - loyalty, aggression, anxiety, leadership, propaganda - as they affect domestic and international politics.

671. Psycholinguistics. Cr. 3

Prereq: graduate standing or undergraduates with a strong psychology or linguistics background. Theory and research in various topics in psycholinguistics, including language development, speech perception and production, and language comprehension and memory, discussed within the framework of the behaviorist, generative linguistic and information processing approaches to language.

699. Advanced Special Topics. Cr. 3(Max. 6)

Prereq: senior standing; psychology major with 3.0 h.p.a. or honors program seniors. Topics to be announced in *Schedule of Classes*.

701. History of Systems in Psychology. Cr. 3

Prereq: admission to doctoral program in psychology or consent of instructor. Historical background of psychoanalytic theory, behaviorism, gestalt and other theoretical trends in modern psychology; developmental trends, major personalities, and criteria for evaluation of psychological systems.

706. Psychobiology of Sensory Coding. Cr. 3

Prereq: PSY 606 and either 505 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.

708. Perception and Its Issues. Cr. 3

Prereq: admission to graduate program in psychology. Current theories and issues examined, analyzed, evaluated. Relationship of theory to research.

709. Theories of Learning. Cr. 3

Prereq: admission to graduate program in psychology. Systematic examination of learning theories.

710. Conceptual Behavior. Cr. 3

Prereq: admission to graduate program in psychology; PSY 609 or written consent of instructor. History, theory and recent research in the area of concept development and concept utilization.

711. Advanced Comparative Psychology. Cr. 3

Prereq: PSY 412 or equiv. or consent of instructor; admission to graduate program in psychology. Specific problem; 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.

712. Biological Basis of Behavior. Cr. 3

Prereq: admission to the graduate program in psychology or consent of instructor. Major literature relating the anatomy of the nervous system to psychological processes.

714. Psychophysical and Scaling Methods. Cr. 3

Prereq: PSY 410 or written consent of instructor. Major psychophysical methods; data analysis and written reports.

715. Quantitative Methods in Psychology I. Cr. 4

Prereq: PSY 410 or equiv. Introduction to statistical inference for psychologists. Bivariate measures of relationship and associated statistical tests: chi square, t test, F test and selected rank order tests applied to psychological research. Analysis of variance designs: simple randomized, repeated measures, randomized block, factorial and mixed designs.

716. Quantitative Methods in Psychology II. Cr. 4

Prereq: PSY 715. Advanced analysis of variance and selected statistical techniques; introduction to multivariate analyses for psychologists. Analysis of covariance, hierarchical designs and Latin Square designs used in psychological research. Multiple regression, partial correlation, discriminant function analysis, multivariate analysis of variance, cononical variate analysis. Measurement theory and applications including reliability, validity, methods of scale construction, forming composites, problems of selection and classification.

717. Topics in Psychometric Theory. Cr. 3

Prereq: PSY 716. Topics to be selected from the following: generalizability theory, latent trait models, tailored testing, norm vs. criterion-reference testing, test fairness models, problems in measuring change, scaling models.

718. Research Design and Methodology. Cr. 3

Prereq: PSY 716 or consent of instructor. Measurement, design and analysis problems typically encountered in behavioral research. A large set of selected research problems will be considered through student presentations and class discussions.

719. (ANA 719) Neuroscience Survey. (IM 719) (PHC 719). Cr. 3

Prereq: written consent of instructor. Overview of neuroscience as a multifaceted discipline presented by faculty from the Departments of Anatomy, Biochemistry, Immunology and Microbiology, Neurology, Pharmacology, Physiology, and Psychology. A comprehensive critical essay will be required of the student.

720. Psychological Assessment I. Cr. 4

Prereq: admission to Ph.D. program in clinical psychology or consent of instructor. Orientation to clinical measurement. Psychometric tests emphasizing reliability and validity. Individual supervision in intellectual and personality assessment in children and adults.

721. Psychological Assessment II. Cr. 4

Prereq: PSY 720. Continuation of PSY 720. Vocational and achievement testing; interviewing and introduction to theories and techniques in behavioral assessment; projective testing.

723. Practicum in Clinical Procedures. Cr. 1-6

Prereq: consent of director of clinical psychology training program. Offered for S and U grades only. Clerkship in the Psychology Clinic or in one of the clinics cooperating with the University, emphasizing psychological assessment. Weekly diagnostic case conference.

724. Ethical Issues in Clinical Psychology. Cr. 1

Prereq: admission to Ph.D. program in clinical psychology. Offered for S and U grades only. Required of all clinical students. Crucial problems in various phases of clinical psychology, research, practice and teaching. Consultant presentations by legal and other experts.

725. Theory of Personality. Cr. 3

Prereq: admission to graduate program in psychology. Major approaches to the study of personality. Current psychological research and issues in the field; implications for psychotherapy and assessment.

730. Psychopathology. Cr. 3

Prereq: admission to Ph.D. program in clinical psychology or consent of instructor. Basic psychological concepts of psychopathology. Current theory and research and their implications for clinical practice.

733. Clinical Neuropsychology. Cr. 3

Prereq: PSY 405 or 505 or consent of instructor. History of the development of clinical neuropsychology. Current perspectives of theory and empirical foundations of neuropsychological assessment.

735. Experimental Psychodynamics I. Cr. 3

Prereq: PSY 730 or consent of instructor. Experimental psychopathology: research on the mechanisms and genesis of psychological disorders. Implications for clinical practice.

736. Experimental Psychodynamics II. Cr. 3

Prereq: PSY 735 or consent of instructor. Continuation of PSY 735. Emphasis on schizophrenia and brain dysfunction.

737. Therapeutic Interventions I: Introduction and Theories. Cr. 4

Prereq: PSY 730 and admission to Ph.D. program in clinical psychology or consent of instructor. Fundamental principles and empirical foundations of effective psychotherapy. Direct application to clinical practice.

738. Therapeutic Interventions II: Advanced Applications and Innovations. Cr. 4

Prereq: PSY 737. Therapeutic interventions with adult psychopathology; behavioral medicine and social institutions. Therapeutic strategies with children and families.

740. Introduction to Life-Span Developmental Psychology. Cr. 3

Prereq: admission to graduate program in psychology or written consent of instructor. Theory, methods and selected content areas; cognitive and social development as they relate to the entire life cycle.

743. Early Human Development. Cr. 3

Prereq: PSY 740 or written consent of instructor. Seminar on infancy and early child development; achievement of self-regulatory processes; comparative studies.

744. Development of Intelligence. Cr. 3

Prereq: PSY 740 or consent of instructor. Piaget's theory of intellectual development from infancy through adolescence and review of relevant research.

745. Psychology of Social Development. Cr. 3

Prereq: PSY 740 or consent of instructor. Recent perspectives on the psychological and environmental factors influencing social development; attention to ethological and ecological factors.

746. Developmental Psychology of Adolescence. Cr. 3

Prereq: PSY 740 or written consent of instructor. Functional interpretations of physiological, psychological and social changes of adolescence. Biological and anthropological perspectives on sex roles.

747. Research Strategies for Developmental Psychology. Cr. 3

Prereq: PSY 716 and 740 or consent of instructor. Methodology in longitudinal, cross-sectional and sequential research on developmental processes, appropriate statistics and practical problems.

748. Psychological Development in the Adult Years. Cr. 3

Prereq: PSY 740 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.

749. Developmental Psychology of Later Life. Cr. 3

Prereq: PSY 740 or written consent of instructor. Later years of human life from the perspective of developmental psychology; attention to viewpoints in biology, sociology. Personality structure and phenomenological life, and the possibilities of continuous psychological development.

750. Research Methods in Industrial Psychology. Cr. 3

Prereq: PSY 715, admission to doctoral program in psychology or consent of instructor. Required of all first-year students in industrial and organizational program. Analysis of methodology and research design problems in the field of industrial psychology; discussion of professional and ethical problems.

751. Research Methods in Industrial Criterion Development. Cr. 3

Prereq: admission to doctoral program in psychology or consent of instructor; prereq. or coreq: PSY 717 and 750. 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.

752. Theory and Research in Selection and Placement. Cr. 3

Prereq: PSY 750 and 751, admission to doctoral program in psychology or consent of instructor. Principles in development of selection procedures for industry, problems in matching of human characteristics and job requirements; methods of determining reliability and validity.

755. Psychological Analysis of Organizations. Cr. 3

Prereq: admission to doctoral program in psychology or consent of instructor. 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.

756. Theory and Research on Leadership and Executive Development. Cr. 3

Prereq: PSY 750; admission to doctoral program in psychology or consent of instructor. Selected leadership research studies; theories relating to leadership; principles of training and development.

757. Theory and Research on Industrial Motivation and Morale. Cr. 3

Prereq: PSY 750 and 762; admission to doctoral program in

psychology or consent of instructor. 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.

758. Theories and Issues in Organizational Change and Development. Cr. 3

Prereq: PSY 750, 755; written consent of instructor. Presentation of the major theoretical approaches and frameworks in the area of organizational development; critical evaluation of the relative effectiveness of organizational interventions based on these approaches. Relevant conceptual, professional, ethical and methodological issues.

761. Research Seminar in Social Psychology. Cr. 3

Prereq: PSY 715 and 762. Research problems and methodology in social psychology, touching on field research, laboratory research, and attitude measurement techniques.

762. Theories of Social Psychology. Cr. 3

Prereq: PSY 260 or equiv. Socio-psychological theories considered essential to understanding the influence of the group on the individual, and of the individual on the group.

763. Group Processes. Cr. 3

Prereq: PSY 762 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.

765. Social Conflict and Social Change. Cr. 3

Prereq: PSY 762 or equiv. or consent of instructor. Strategies for producing, and consequences of, change. Topics 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.

767. Social Cognition and Social Influence. Cr. 3

Prereq: PSY 762 or equiv. or consent of instructor. Attitude theory and attitude change, interpersonal perception and interpersonal attraction, social motivation, and conformity processes.

790. Directed Study. Cr. 1-9(Max. 9)

Prereq: written consent of instructor, adviser and graduate officer. For students who wish further study of technical literature of a problem systematically reviewed in a preceding course. Intensive and systematic reading of original literature (particularly journals) dealing with topic or problem.

796. Research Seminar in Clinical Psychology. Cr. 1

Prereq: admission to the Ph.D. program in clinical psychology. Introductory seminar for first year students and faculty in clinical psychology. Both semesters required.

797. Research Problems. Cr. 1-6(Max. 18)

Prereq: written consent of instructor and adviser. Original research under direction of departmental staff. Final written report and examination.

798. Field Practicum in Psychology. Cr. 1-6 (Max. 12)

Prereq: admission to the Ph.D. program in psychology. Not open to students in Clinical Psychology Training Program; only four credits count toward Ph.D. degree. Practicum experience in an approved training facility. Supervision by faculty members.

802. Advanced Study of Psychological Systems. Cr. 3

Prereq: PSY 201 or twenty credits in psychology. Recent systems; scope of interest, methodology, particular problems.

806. Advanced Physiological Psychology. Cr. 4

Prereq: PSY 405 or 505, written consent of instructor. Physiological correlates of behavior. Contemporary literature and techniques used

in psycho-physiological research in areas of learning, motivation, perception.

807. Laboratory in Physiological Psychology. Cr. 2

Prereq. or coreq: PSY 806 or consent of instructor. Laboratory course covering standard procedures in physiological psychology including brain lesions, brain stimulation, electrophysical recording and chemical injections.

808. Seminar in Biochemistry and Behavior. Cr. 3

Prereq: written consent of instructor. Influence of drugs, hormones, and endogenous chemical processes on behavior; current research in endocrinology, neuroendocrinology and neuropsychopharmacology.

809. Instrumental Learning and Classical Conditioning. Cr. 3

Prereq: PSY 709. Experimental phenomena and their significance for learning theory.

810. Verbal Learning. Cr. 3

Prereq: PSY 709 or written consent of instructor. Empirical facts and theoretical directions of current research.

815. Multivariate Analysis in Psychology. Cr. 3

Prereq: PSY 716 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.

816. Advanced Experimental Design. Cr. 3

Prereq: PSY 716 or consent of instructor. Latin and Graeco-Latin square designs. Mixed designs. Incomplete block designs. Orthogonal polynomials. Trend analysis. Curve fitting.

833. Advanced Clinical Neuropsychology. Cr. 3

Prereq: PSY 721 and 733. History, research methodologies and current theories regarding brain-behavior relationships and neurological dysfunction.

835. Community Psychology. Cr. 3

Prereq: consent of instructor. Current findings, theory, and research in the field of community psychology. Emphasis on current urban problems.

837. Psychology of Alcohol Abuse and Alcoholism I. Cr. 2-3

Prereq: admission to graduate school and acceptance in the alcohol training program. Course to be followed by PSY 838. First course in a two-course proseminar foundation of training program in psychology of alcohol abuse and alcoholism. Core material in the biological, sociological and psychological foundations of alcoholism; current research issues.

838. Psychology of Alcohol Abuse and Alcoholism II. Cr. 2-3

Prereq: PSY 837. Continuation of PSY 837.

839. Therapeutic Intervention Practicum. Cr. 1-6(Max. 12)

Prereq: PSY 738. Offered for S and U grades only. Weekly group case conference supervised by qualified therapists; video and tape recorded case sessions presented to supervisor in individual case conferences.

840. Current Issues in Developmental Psychology. Cr. 3(Max. 9)

Prereq: written consent of instructor. Integrative seminar in current theoretical and empirical issues.

850. Seminar in Industrial Psychology. Cr. 2-3(Max. 9)

Prereq: consent of instructor. For industrial psychology students. Current topics in industrial psychology; content varies.

860. Seminar in Experimental Social Psychology. Cr. 3(Max. 9)
Prereq: PSY 762 or equiv. or consent of instructor. Review and evaluation of the literature on some current topic of research or theoretical concern.

864. Seminar in Applied and Interdisciplinary Social Psychology. Cr. 3

Prereq: PSY 762 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: sociology, economics, history, anthropology and others.

865. Seminar in Advanced Topics in Social Psychological Research. Cr. 1-3 (Max. 6)

Prereq: PSY 762 or equiv. or consent of instructor. Field and survey techniques, unobtrusive measures, computer simulation, advanced data analysis, group observation techniques.

867. Experimental Analysis of Behavior. Cr. 3

Prereq: PSY 709 and 809. Research in the experimental analysis of aversive control and stimulus control of behavior; applications to management of human behavior.

868. Seminar in Physiological Psychology. Cr. 3(Max. 9)

Prereq: written consent of instructor. Critical examination of contemporary research on selected topics concerned with relationships between physiological mechanisms and behavior.

869. Seminar in Comparative Psychology. Cr. 3(Max. 9)

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.

872. Seminar in Cognitive Processes. Cr. 3 (Max. 15)

Prereq: written consent of instructor. Literature on concept formation, problem solving, thinking, aphasia, other language functions. Content varies.

873. Seminar in Applied Cognitive Processes. Cr. 3 (Max. 9)

Prereq: written consent of instructor. The application of cognitive theory: memory disorders, psychology of reading as information processing, psychological issues in language disorders, human factors, and other topics.

874. Seminar in Psychological Measurement and Statistics. Cr. 3(Max. 9)

Prereq: PSY 716. Problems in scaling, statistical analysis of learning data, multivariate analysis, mathematical models in psychology, related topics; content varies.

876. Seminar in Clinical Psychology. (CRJ 876). Cr. 1-3(Max. 12 for psychology majors)

Prereq: consent of instructor. New clinical methods and scientific developments in the field of clinical psychology. Meets with continuing education seminars in clinical psychology.

878. Seminar in Sensory Processes. Cr. 3(Max. 9)

Prereq: PSY 606 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.

880. Special Topics in Psychology. Cr. 2-8 (Max. 18)

Prereq: completion of master's level research; written consent of adviser and chairman of graduate committee. Review and evaluation of developments within a special area of psychology.

881. Theory and Methods of Evaluation in Psychology. Cr. 3

Prereq: PSY 715, 716 and consent of instructor.. An introduction to

the theories and methods of program evaluation in such areas as community psychology, mental health systems, criminal justice systems.

882. Theory and Methods of Evaluation in Psychology II. Cr. 3

Prereq: PSY 881. Methodological techniques and designs for program planning, development and evaluation; practical experience.

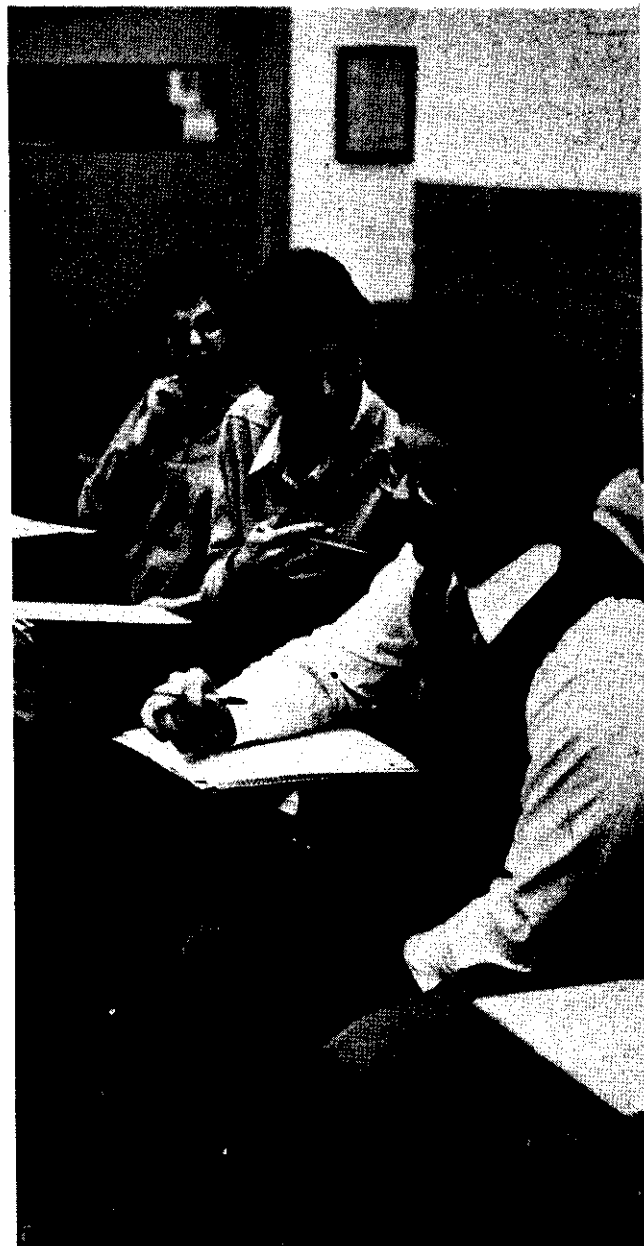
899. Master's Thesis Research and Direction. Cr. 2-8(8 req.)

Prereq: consent of adviser.

999. Doctoral Dissertation Research and Direction.

Cr. 2-16(30 req.)

Prereq: consent of doctoral adviser. Offered for S and U grades only.



ROMANCE AND GERMANIC LANGUAGES AND LITERATURES

Office: 487 Manoogian Hall

Chairperson: Marvin S. Schindler

Academic Services Officer: Mary Hoffiz

Professors

Vincent C. Almazan (Emeritus), Fernande Bassan, Henry N. Bershas (Emeritus), Jose F. Cirre (Emeritus), Manuela M. Cirre (Emeritus), Carl Ö. Colditz (Emeritus), Penrith B. Goff, Jacques L. Salvan (Emeritus), Marvin S. Schindler, Ivan Schulman, E. Burrows Smith, Guy Stern

Associate Professors

Nicolas Alvarez, Vladimir Bezdek (Emeritus), Achim Bonawitz, Erhard Dabringhaus, Andrea di Tommaso, Uwe K. Faulhaber, Evelyn Garfield, Jesus Gutierrez, Louise M. Jefferson, Louis Kibler, Charlotte Lemke (Emeritus), Jacqueline Morton, Hermann D. Poster (Emeritus), Hector R. Romero, Sol Rossman, Maria C. Roth, Gary E. Scavnicky, Donald C. Spinelli, Bernard Valentini (Emeritus), Richard Vernier, A. Monica Wagner

Assistant Professors

Alfred Cobbs, Michael J. Giordano, Donald P. Haase Leonor E. McAlpine, Donald E. Schuriknight, H. Jay Siskin

Lecturers

Claude Astrachan, Beatrix Fuzet-Przekop, Halina Loukopoulos

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

Foreign Language Group Requirement

This requirement may be satisfied by passing the first three courses in one language or by proficiency examination, see page 223.

Courses: The student should elect a language as early as possible and continue it without interruption. The courses numbered 101, 102, and 201 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: The main guide to placement for students who wish to continue the study of a language begun in high school is the number of years of high school language study. Students with one year of high school study are advised to enroll in 101, those with two year, in 102, those with three years, in 201. Those with four years of study may elect 201 in order to satisfy the foreign language requirement or may choose to write the Proficiency Examination administered by the Department. Students with a sufficiently high proficiency score will be deemed to have satisfied the Foreign Language Group Requirement. For information on the Proficiency Examination, contact the Department at 577-3002. Examinations are scheduled by appointment at the Department Office, 487 Manoogian Hall. (A fee is charged.)

Humanities Group Requirement

(See page 223.)

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 202, 360, 361, 362, 460, 461, 462, 463, and 465. Literature courses primarily designed for juniors and seniors are on the 600 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 Academic Studies: 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 231.

Preparation for Careers in Business: Foreign language majors who do not plan to teach may wish to consider a series of courses in the School of Business Administration which will provide some background for potential employment with multinational corporations. These courses will also prepare them for entrance into the Master of Business Administration degree program after completion of the B.A. For information, contact the Associate Dean of the School of Business Administration, 226 Prentis Building, telephone: 577-4503.

Cognate Courses: All majors in the fields of German, Italian, and Spanish 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 387.) 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: There are two French majors offered by the Department, one in language and literature and the other in language and culture. A major in French language and literature must take French 310, 361, 362, 510, 520, 640, and sixteen credits in courses on the 600 level. Of these sixteen credits, three must be in literature and must represent three of the following groups.

- 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
- Group G: French Bibliography and Research Methods; Critical Approaches to Literature; Advanced French Grammar.

A major in French language and culture must take French 310, 361, 362, 510, 520, 540, 571, 640, and 645.

French majors in either option are also required to take at least three cognate courses to be selected in consultation with the undergraduate major adviser.

Wayne at Gordes, France: With the approval of the Department students may take credits in advanced French during an eight-week summer session in the Renaissance village of Gordes in the south of France. (See Study Abroad, page 219.)

Minor Requirements in French: A French minor requires the completion of eighteen credits in French courses including: 202, 271 or 571, 310, 361 or 362, and 510 or 520 or one course at the 600 level.

Major Requirements in German: A major in German must take German 310 or 320, 361, 362, 460, 510 or 520, 655 and three courses in literature on the 600 level.

Junior Year in Munich or Freiburg: With the approval of the department, majors may take their junior year abroad in either of the supervised intercollegiate junior year programs. (See Study Abroad, page 219.)

Minor Requirements in German: A German minor requires the completion of eighteen credits in German courses including: 202, 271 or 571, 310, 361 or 362, and 510 or 520 or one course at the 600 level.

Major Requirements in Italian: A major in Italian must take Italian 310, 320, 360 and 361; 511 or 530; 661; 666 or 667; and two courses in the post-Renaissance period. Including the two cognate courses required of all departmental majors, the total number of required courses is eleven.

Minor Requirements in Italian: An Italian minor requires the completion of eighteen credits in Italian courses including: 202, 310 or 320, 360 or 361, 530 or any 600 level course, and one additional course at the 300 or 600 level. Substitutions can be made after consultation with the undergraduate adviser.

Wayne at Bologna, Italy: Beginners in Italian as well as advanced students may earn up to eight credits during an eighteen week summer session in Bologna, Italy (see Study Abroad, page 219).

Major Requirements in Spanish: A major in Spanish must take Spanish 461 and 462, one of which must be taken by the end of the student's first semester as a major, and the other by the end of the first

year as a major. Also required are Spanish 310, 410 or 511, 463 or 465, 520, 530, 555 or 556, and three literature courses at the 600 level, at least one peninsular and at least one Latin American.

Minor Requirements in Spanish: A minor in Spanish requires the completion of 202 and five courses beyond that level for a minimum of nineteen credits. With the guidance of the undergraduate adviser, courses may be chosen from the following: (literature) 461, 462, 463, 465, 650, 651, 652, 653, 686, 687, 688, 689, 691, 692, 693, 694, 695, 696; (language) 310, 410, 511, 520, 530, 541, 640; (culture) 555, 556.

MASTER OF ARTS

Plan A: Twenty-four credits in course work, plus a thesis.

Plan B: Twenty-nine credits in course work, plus an essay.

Plan C: Thirty-two to thirty-three credits in course work depending on the plan of work.

Students envisaging a teaching career on the college level or intending to continue to the doctoral may elect either Plans A, B, or C-Literature. At present, Plan C-Literature is available only in French and Spanish. Plan C-Language and Culture, available only in French, is intended primarily for those interested in teaching on the elementary and secondary school levels; students who elect Plan C-Language and Culture 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.

— Under Plans A and B

1. Candidates in French are required to take French 692, 730, and 751. No more than four credits in work on the 500 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 640, 692, 730, and 740.
3. Candidates in German are required to take German 751 and 752.
4. Candidates in Italian are required to take Italian 730. No more than four credits in work on the 500 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 - Literature

Candidates in French are required to take French 692, 730, and 751. No more than four credits in work on the 500 level may be counted toward the degree and course work must include two graduate seminars. No essay is required for Plan C-Literature. Candidates for the degree must, upon completion of their course work, take a comprehensive written and oral examination based on the French area reading list for the Master of Arts Degree.

Candidates in Spanish are required to take Spanish 640, 692, 730, and 740. Undergraduate and graduate course work must include at least one course in each period of Spanish and Spanish-American literature and at least one seminar. Upon completion of their course work, candidates are required to write a comprehensive examination covering Spanish language and linguistics (grammar, structure, and semantics) and four periods of Hispanic literature of their choice, at least one of which, however, must be Spanish-American literature. In addition to

the written examination, an oral examination may be required.

— Under Plan C - Language and Culture

This plan is available to French candidates only. Candidates are required to take French 510, 520, 540, 640, and 645; however, any part of this requirement may be waived by the graduate adviser if he/she judges it has been properly satisfied in previous study. A minimum of twelve credits of French literature in courses on the 600 level or higher is also required, one of which must be a seminar. With the consent of the candidate's adviser, up to six credits may be elected in cognate fields. 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 School section of this bulletin (page 18) and the Graduate Academic Procedures for the College of Liberal Arts (page 233).

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 School at least three months in advance of the time the applicant plans to register. A letter giving information on the applicant's educational background, experience, objectives, oral fluency in the language, or proposed major concentration and other data of interest to an evaluating committee should be sent by the applicant as soon as possible to the Chairperson 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 twenty 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/her 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 thirty-six credits on the graduate level in the field of major concentration, sixteen credits in one minor field, and eight credits in cognate courses. The total program must include thirty credits (excluding dissertation direction) at the 700 level or above. Course requirements for Master of Arts (Plans A, B and C-Literature) apply in the field of 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 required.

COURSES OF INSTRUCTION¹

—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. 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 derived.

French in English Translation (FRE)

270. (ITA 270) Anguish and Commitment: European Existentialist Literature. (SPA 270) (GER 270) (RUS 270). Cr. 3

A team-taught interdisciplinary study in English of representative works by European existentialist writers: Dostoevsky, Rilke, Kafka, Moravia, Sartre and Camus.

271. Introduction to French Civilization. Cr. 3

An overview of France's great contributions to world culture; study of French history, thought, art, architecture, society, geography, and institutions, illustrated with slides and films; includes visits to the Detroit Institute of Arts.

290. Studies in French Literature. Cr. 3(Max. 9)

Individual themes, critical issues, special problems, or trends in French literature. Topics to be announced in *Schedule of Classes*.

515. French Cinema as Literature. Cr. 3(Max. 6)

Material fee as indicated in *Schedule of Classes*. Study of diverse aspects of French cinema: social realism, poetic cinema, or specific film-makers; reference to contemporary trends in literature and society.

571. The Contemporary French Mind. Cr. 3

Prereq: FRE 271 recommended. Study of the intellectual and moral values underlying French culture and institutions; their transformation under the stress of the twentieth century. French majors required to do readings in French.

691. Contemporary French Criticism. Cr. 4

Theory and practice of contemporary French criticism; structuralist and post-structuralist works: Barthes, Todorov, and Derrida. French majors required to do readings in French.

German in English Translation (GER)

170. Introduction to Norse Mythology. Cr. 3

Typical myths and their relation to the religion, customs, ethics, art, and literature of the Germanic tribes to the end of the Viking Age.

270. (ITA 270) Anguish and Commitment: European Existentialist Literature. (SPA 270) (FRE 270) (RUS 270). Cr. 3

A team-taught interdisciplinary study in English of representative works by European existentialist writers: Dostoevsky, Rilke, Kafka, Moravia, Sartre and Camus.

¹ See page 633 for interpretation of numbering system, signs and abbreviations.

- 271. Survey of Germanic Culture I. Cr. 3**
Development of Germanic people from their origin to 1835; their major contributions of cultural significance to the Western world.
- 272. Survey of Germanic Culture II. Cr. 3**
Development of Germanic people from 1835 to the present; the Nazi period; and World War II.
- 280. Masterpieces of German Literature. Cr. 3**
Readings from major periods: works by Goethe, Mann, Hesse, Kafka, Brecht. Lecture and discussion.
- 290. Studies in German Literature. Cr. 3(Max. 9)**
Individual themes, critical issues, special problems, or trends in German literature. Topics to be announced in *Schedule of Classes*.

Italian in English Translation (ITA)

- 270. Anguish and Commitment: European Existentialist Literature. (SPA 270) (FRE 270) (GER 270) (RUS 270). Cr. 3**
A team-taught interdisciplinary study in English of representative works by European existentialist writers: Dostoevsky, Rilke, Kafka, Moravia, Sartre, Camus, Unamuno, Mallea and Lispector.
- 272. Topics in Italian Culture. Cr. 3(Max. 6)**
Themes, issues, problems, or trends in the culture of Italy as reflected in its literature. Topics to be announced in *Schedule of Classes*.
- 290. Topics in Italian Literature. Cr. 3(Max. 9)**
Themes, periods, genres, movements, or individual writers of Italian literature. Topics to be announced in *Schedule of Classes*.
- 297. Dante's "Divine Comedy". Cr. 3**
The poem as a synthesis of medieval culture; its structure, poetic value, and relevance to Western literature.
- 315. Aspects of Italian Cinema. Cr. 3(Max. 6)**
Material fee as indicated in *Schedule of Classes*. Major developments in the Italian cinema from the origins to the present. Knowledge of Italian not required. Topics to be announced in *Schedule of Classes*.
- 515. Advanced Study of Italian Cinema. Cr. 3(Max. 9)**
Material fee as indicated in *Schedule of Classes*. Concentrated study of specific trends or the development of individual directors. Topics to be announced in *Schedule of Classes*.
- 597. Dante's "Divine Comedy". Cr. 3**
The poem as a synthesis of medieval culture; its structure, poetic value, and relevance to Western literature.

Spanish in English Translation (SPA)

- 270. (ITA 270) Anguish and Commitment: European Existentialist Literature. (FRE 270) (GER 270) (RUS 270). Cr. 3**
A team-taught interdisciplinary study in English of representative works by European existentialist writers: Dostoevsky, Rilke, Kafka, Moravia, Sartre and Camus.
- 283. Twentieth Century Spain: Culture and Literature. Cr. 3**
The historical and cultural realities of Spain as reflected in the literature of the twentieth century.
- 288. Masterpieces of Hispanic Literature. Cr. 3(Max. 9)**
Readings from selected masterpieces. Topics to be announced in *Schedule of Classes*.
- 290. Studies in Spanish Literature. Cr. 3(Max. 9)**
Period, genre, or topic to be announced in *Schedule of Classes*.

- 291. Spanish American Literature and Culture. Cr. 3(Max. 9)**
Genres, writers, themes, trends. Topics to be announced in *Schedule of Classes*.
- 292. Latin American Culture Today. Cr. 3**
The cultural and social development of contemporary Latin America as depicted in literature and art.
- 297. Cervantes. Cr. 3**
Don Quijote as one of the major artistic expressions of the Western world.
- 597. Cervantes' "Don Quijote". Cr. 3**
Don Quijote as one of the major artistic expressions of the culture of the Western world.

FOREIGN LANGUAGE INSTRUCTION

French (FRE)

- 101. Elementary French. Cr. 4**
Training in pronunciation, aural comprehension, oral and written expression. Laboratory work is part of class preparation.
- 102. Elementary French. Cr. 4**
Prereq: FRE 101 or placement. Continuation of FRE 101.
- 110. Elementary French: Alternate Track. Cr. 4**
Only two degree credits. No credit if followed by FRE 101. Should be followed by FRE 111. Partial repetition of FRE 101. Training in pronunciation, aural comprehension, oral and written expression.
- 111. Elementary French: Alternate Track. Cr. 4**
Prereq: FRE 110. Only two degree credits. Continuation of FRE 110. Partial repetition of FRE 101.
- 199. Comprehensive Elementary French. Cr. 8**
No credit after first year college French. No credit after first year college French. Concentrated study of first year French.
- 201. Intermediate French. Cr. 4**
Prereq: FRE 102 or placement. Continuation of FRE 102.
- 202. Introduction to the Reading of Literature. Cr. 4**
Prereq: FRE 201. An initiation into the reading of various literary genres. Methods and vocabulary to discuss and analyze the essays, poems, short novels, and plays under consideration.
- 203. Introduction to Readings in French. Cr. 4**
Prereq: FRE 201. Readings in diverse topics relevant to contemporary France in the areas of daily life, politics and business. Selections from journals, newspapers and magazines.
- 204. Commercial French. Cr. 3**
Prereq: FRE 201 or consent of instructor. No credit toward French major. Commercial French for basic business transactions and correspondence; legal organization of French business and terminology in banking, marketing, commerce, accounting, travel, insurance, customs.
- 208. Informal French Conversation. Cr. 2 (Max. 4)**
Offered for S and U grades only. Does not count toward fulfillment of foreign language group requirement. No credit for French majors. Informal conversation.

310. Intermediate Grammar, Conversation and Contemporary Cultural Readings. Cr. 4

Prereq: FRE 201. Discussion, composition, and review of grammar based on readings dealing with contemporary French social and cultural topics: government, theatre and cinema, law, education, women, and the family.

361. Major French Genres I: Poetry and Fiction. Cr. 4

Prereq: FRE 202 or 310 or consent of instructor. Study of poetry and fiction from the Middle Ages to the twentieth century. Required collateral reading in French literary history.

362. Major French Genres II: Drama and Essay. Cr. 4

Prereq: FRE 202 or 310 or consent of instructor. Study of drama and the essay from the Middle Ages to the twentieth century. Required collateral reading in French literary history.

510. Advanced Speaking and Writing. Cr. 4

Prereq: FRE 310 or equiv. or consent of instructor. Spoken French in the context of French civilization. Readings and writing skills based on contemporary French literary texts, translations.

511. French Laboratory Theater. (Lab: 6). Cr. 3(Max. 9)

Prereq: consent of instructor. Does not satisfy 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.

520. Language Skills: Phonetics and Diction. Cr. 3

Prereq: FRE 310 or equiv. or consent of instructor. A systematic study of French sounds, phonetic transcriptions; practice in the language laboratory; intensive drills in accurate pronunciation and intonation.

531. Advanced Composition "sur le Motif". Cr. 4

Prereq: FRE 310. Composition and *explication de textes* utilizing texts related to Provence. Taught only in Provence at the Wayne State University summer program in Gordes, France.

540. Advanced Grammar Review. Cr. 3

Prereq: FRE 310. Advanced French grammar.

640. The Structure of French. Cr. 4

Prereq: FRE 520 or consent of instructor. Principles of linguistics and their application to French.

645. French Civilization. Cr. 4

Prereq: FRE 361 or 362 or consent of instructor. Introduction to French history, society, institutions, and culture; interrelation of cultural trends in French art and thought. Films, slides, visits to the Detroit Institute of Art.

646. Civilization "sur le Motif". Cr. 4

Prereq: FRE 310. 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.

651. French Sixteenth Century Literature. Cr. 4(Max. 8)

Prereq: FRE 361. Study of the literary trends of the Renaissance: Marot, Sceve, Labe, Du Bellay, Ronsard, D'Aubigne, Montaigne and others. Content will vary to cover a genre, literary movement, literary school, or period. Topics to be announced in *Schedule of Classes*.

663. French Seventeenth Century Literature. Cr. 4(Max. 8)

Prereq: FRE 361 or equiv. or consent of instructor. Historical background, religious and literary movements. Development of the Classical ideal in literature, salons, and academies. Representative authors of non-dramatic literature and the theatre (Corneille, Moliere and Racine). Content varies to cover a genre, literary movement, school or period. Topics to be announced in *Schedule of Classes*.

665. French Eighteenth Century Literature. Cr. 4(Max. 8)

Prereq: FRE 362. The four major *philosophes*: Montesquieu, Diderot, Voltaire and Rousseau; precursors such as Cyrano, Fontenelle and Bayle. Developments in prose fiction and theatre; representative works of these genres. Content varies to cover a genre, literary movement, school or period. Topics to be announced in *Schedule of Classes*.

677. Studies in French Literature. Cr. 4(Max. 8)

Prereq: FRE 362. Works of an outstanding writer or of a literary movement. Topics to be announced in *Schedule of Classes*.

681. French Nineteenth Century Literature. Cr. 4(Max. 8)

Prereq: FRE 362. Romanticism, Realism, Naturalism, Parnassian poetry, and the theatre of the second half of the nineteenth century. Chateaubriand, Hugo, Flaubert, Zola, Leconte de Lisle, Becque, and others. Course content will vary to cover a genre, or literary movement, school or period. Topics will be announced in the *Schedule of Classes*.

683. French Lyric Poetry. Cr. 4

Prereq: FRE 362. The development of the lyric genre, from the origin of its formal conventions to modern challenges to the tradition. Emphasis on oral interpretation and textual analysis of poetry from Baudelaire to the present.

684. French Twentieth Century Literature. Cr. 4(Max. 8)

Prereq: FRE 362. Novel and drama, literary movements and representative authors from the turn of the century to the present: Proust to Le Clezio; Jarry to Tardieu. Course content will cover a genre or literary movement, school or period. Topics will be announced in the *Schedule of Classes*.

686. Studies in Literature of French Expression. Cr. 4(Max. 8)

Prereq: FRE 362 or consent of instructor. Francophone literature as represented in the distinct traditions of Africa and the West Indies, Canada and Switzerland. Topics to be announced in *Schedule of Classes*.

692. French Bibliography, Research Methods, and Theory of Literature. Cr. 4

Prereq: two 600-level French literature courses. Open only to seniors and graduate students. Initiation to French bibliographical tools and their usage in research. Methodology for papers, essays, and dissertations. *Explication de textes*. Theory of literature.

730. Introduction to Romance Philology. (SPA 730) (ITA 730). Cr. 3

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.

750. History of the French Language. Cr. 4

Prereq: FRE 730 or consent of instructor. Development of the language from its origins to the present day. The French language as a reflection of currents of thought and literary style.

751. Medieval French Language and Literature. Cr. 4

Prereq: FRE 730. Required of French majors. Study of the Old French language and readings representative of the literature of the Middle Ages.

777. Special Studies in French Literature. Cr. 4(Max. 8)

Prereq: minimum of eight credits in 600-level French literature courses or consent of adviser. Works of an outstanding writer, a literary genre, or of literary trends.

842. Seminar in French Language. Cr. 4(Max. 8)

Prereq: FRE 640 or 730. Special problems in synchronic and

diachronic aspects of the French language.

870. Seminar in Medieval French Language and Literature. Cr. 4(Max. 8)

Prereq: FRE 751 or consent of instructor. Specified aspect, movement, author or group of authors, text criticism, edition of texts, philological themes.

871. Seminar in the French Renaissance. Cr. 4(Max. 8)

Prereq: minimum of eight credits in 600-level French literature courses or consent of instructor. Specified aspect, movement, author, or group of authors.

872. Seminar in French Classicism. Cr. 4(Max. 8)

Prereq: minimum of eight credits in 600-level French literature courses or consent of instructor. Specified aspect, movement, author, or group of authors.

873. Seminar in the French Enlightenment. Cr. 4(Max. 8)

Prereq: minimum of eight credits in 600-level French literature courses or consent of instructor. Specified aspect, movement, author, or group of authors.

874. Seminar in Nineteenth Century French Literature. Cr. 4(Max. 8)

Prereq: minimum of eight credits in 600-level French literature courses or consent of instructor. Specified aspect, movement, author, or group of authors.

875. Seminar in Twentieth Century French Literature. Cr. 4(Max. 8)

Prereq: minimum of eight credits in 600-level French literature courses or consent of instructor. Specified aspect, movement, author, or group of authors.

Special Courses

090. French for Ph.D. Reading Requirement. Cr. 4
Offered for S and U grades only. No degree credit.

500. Minor Language Practicum. Cr. 3(Max. 9)

Prereq: consent of graduate adviser. Offered for S and U grades only. No degree credit toward Ph.D. Controlled application of active language skills for students electing a Ph.D. minor in French.

590. Directed Study. Cr. 1-4 (Max. 6)

Prereq: undergrad., consent of adviser and chairperson; grad., consent of chairperson, adviser, and graduate officer.

796. Research Project. Cr. 1-3(Max. 6)

Prereq: consent of graduate adviser.

799. Master's Essay Direction. Cr. 1-3(3 req.)

Prereq: consent of adviser.

899. Master's Thesis Research and Direction. Cr. 2-8(8 req.)

Prereq: consent of adviser.

999. Doctoral Dissertation Research and Direction. Cr. 1-16(30 req.)

Prereq: consent of doctoral adviser. Offered for S and U grades only.

German (GER)

101. Elementary German. Cr. 4

Development of ability to speak and read German.

102. Elementary German. Cr. 4

Prereq: GER 101 or placement. Continuation of GER 101.

199. Comprehensive Elementary German. Cr. 8

No credit after first year college German. Concentrated study of first year elementary German.

201. Intermediate German. Cr. 4

Prereq: GER 102 or 199 or placement. Continuation of GER 102. Reading of graded German literature and grammar review. One section emphasizes development of reading in student's particular field of study; section announced in *Schedule of Classes*.

202. Intermediate German. Cr. 4

Prereq: GER 201 or equiv. Continuation of GER 201.

204. Scientific German. Cr. 4

Prereq: GER 201 or equiv. Readings in German scientific literature.

208. Informal German Conversation. Cr. 2 (Max. 4)

Prereq: GER 101 or equiv. Offered for S and U grades only.

310. Intermediate Composition and Conversation I. Cr. 3

Prereq: GER 202 or equiv. German of common usage. Practical approach to contemporary idioms.

320. Intermediate Composition and Conversation II. Cr. 3

Prereq: GER 202 or equiv. German of common usage. Practical approach to contemporary idioms.

361. The Major Periods of German Literature. Cr. 3

Prereq: GER 202 or equiv.

362. Major Literary Genres. Cr. 3

Prereq: GER 202 or equiv.

460. Proseminar: Goethe. Cr. 3

Prereq: GER 361 or 362.

510. Advanced Composition and Conversation. Cr. 3

Prereq: GER 310 or 320 or equiv. Emphasizes improvement of student's oral and written command of German. Detailed study of modern German syntax.

511. German Laboratory Theatre. (Lab: 6). Cr. 3(Max. 9)

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.

520. Phonetics and Diction. Cr. 3

Prereq: GER 310 or 320 or equiv. Phonetics and phonological structure of standard modern German speech. Theory and practice.

640. Structure of German. Cr. 4

Prereq: GER 510 or 520. Principles of linguistics and their application to German. Conducted in English.

655. German Civilization. Cr. 4

Prereq: consent of instructor. Interrelation of cultural trends in German art and thought. Conducted in German.

661. German Lyric Poetry. Cr. 4

Historical survey of German lyric poetry from the Baroque to the twentieth century; tools and methods of interpretation.

662. Bibliography and Methodology of Literary Research. Cr. 4

665. Romanticism. Cr. 4

Philosophical and aesthetical foundations, major figures, and works of the period.

667. German Literature in the Nineteenth Century. Cr. 4

Junges Deutschland, Heine, Buechner, Grabbe, Hebbel, and the major prose writers of realism.

670. The Baroque. 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.

672. The German Enlightenment. Cr. 4

Lessing; *Sturm und Drang*.

673. Weimar Classicism. Cr. 4

Goethe; Schiller.

677. German Literature from 1885 to 1930. Cr. 4

678. German Literature Since 1930. Cr. 4

679. Studies in German Literature. Cr. 1-4(Max. 12)

Major author, genre, or literary movement. Topics to be announced in *Schedule of Classes*.

691. Problems in German Literary and Aesthetic Theory. 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.

699. Early German Literature. Cr. 4

From the beginning through the Reformation.

710. Advanced Composition and Stylistics. Cr. 4

Different levels of style in modern German and earlier literary periods. Composition in modern German.

751. Introduction to the History of the German Language and Historical Grammar. Cr. 4

752. Middle High German Language. Cr. 4

754. Middle High German Literature. Cr. 4

Prereq: GER 752. Selections from the lyric and epic poetry of major writers.

757. Old High German. Cr. 4

Selected texts from the main dialects (Bavarian, Alemannic, Franconian) to present a unifying image of the period. Individual study and reports.

868. Seminar in German Studies. Cr. 4(Max. 16)

Topics to be announced in *Schedule of Classes*.

Special Courses

090. German for Ph.D Reading Requirements. Cr. 4

Offered for S and U grades only. No degree credit.

391. Foreign Language Service Practicum. Cr. 2(Max. 4)

Prereq: oral and written proficiency in German and consent of chairman. No credit for major or group requirements. Two-hour weekly visits with foreign-born residents of nursing homes to converse in their native language, to gather life histories, to serve as translators, to read aloud foreign language materials, to provide companionship, and to enhance social functioning and adjustments.

500. Minor Language Practicum. Cr. 3(Max. 9)

Prereq: consent of graduate adviser. Offered for S and U grades only. No Ph.D. degree credit. Controlled application of active language skills for students electing a Ph.D. minor in German.

590. Directed Study. Cr. 1-3(Max. 6)

Undergrad. prereq: consent of German adviser; grad. prereq: consent of German adviser and graduate officer.

796. Research Project. Cr. 1-3(Max. 6)

Prereq: consent of graduate adviser.

799. Master's Essay Direction. Cr. 1-3(3 req.)

Prereq: consent of graduate adviser.

899. Master's Thesis Research and Direction. Cr. 2-8(8 req.)

Prereq: consent of adviser.

999. Doctoral Dissertation Research and Direction. Cr. 1-16(30 req.)

Prereq: consent of graduate adviser. Offered for S and U grades only.

Italian (ITA)

101. Elementary Italian. Cr. 4

Ear training, grammar, reading, writing, speaking; emphasis on ability to speak and read Italian.

102. Elementary Italian. Cr. 4

Prereq: ITA 101 or placement. Continuation of ITA 101. Composition, conversation, reading of modern prose.

199. Comprehensive Elementary Italian. Cr. 8

No credit after first year college Italian. Concentrated study of first year elementary Italian.

201. Intermediate Italian. Cr. 4

Prereq: ITA 102 or placement. Grammar review, composition, conversation, reading, discussion of contemporary Italian culture.

202. Intermediate Italian. Cr. 4

Prereq: ITA 201 or placement. Continuation of ITA 201 with readings in modern Italian literature and culture.

310. Italian Conversation. Cr. 3

Prereq: ITA 202 or placement. Conversation based on current topics and reading materials.

320. Italian Grammar and Composition. Cr. 3

Prereq: ITA 202 or placement. Advanced study of Italian grammar, phonetics, and syntax. Practice in writing themes and translations.

360. Masterpieces of Italian Literature I. Cr. 4

Prereq: ITA 202 or consent of department. Representative works or selections from the writings of the major authors from the thirteenth through seventeenth centuries.

361. Masterpieces of Italian Literature II. Cr. 4

Prereq: ITA 202 or consent of department. Representative works or selections from the writings of the major authors from the eighteenth through twentieth centuries.

392. Aspects of Contemporary Italian Culture. Cr. 3

Prereq: ITA 310 or consent of department. Examination of current Italian literature and the reasons for its native popularity. Taught only at the Wayne State University summer program in Italy.

511. Italian Laboratory Theater. (Lab: 6). Cr. 3(Max. 9)

Prereq: consent of instructor. No credit 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.

530. Diction and Stylistics. Cr. 3

Prereq: ITA 310 or 320 or placement. Clarity and fluency in speaking and writing. Stylistic comparison of authors and genres.

650. Text and Context: Approaches to Literary Criticism. Cr. 3(Max. 6)

Close reading of selected critics, analysis of significant trends, critical issues or current developments in literary criticism. Lectures in English, readings in Italian or English. Topics to be announced in *Schedule of Classes*.

660. Studies in Medieval Literature. Cr. 4(Max. 12)

Prereq: ITA 360 or consent of instructor. Selected readings from the literature of the thirteenth and fourteenth centuries, including exemplary works such as Dante's *Vita Nuova*, Petrarch's *Canzoniere*, or Boccaccio's *Decameron*. Topics to be announced in *Schedule of Classes*.

661. Dante: Divine Comedy. Cr. 4

Prereq: ITA 360 or consent of instructor. A close reading of Dante's *Commedia*, with attention to sources, background, and interpretation.

666. Studies in Renaissance Literature. Cr. 4(Max. 12)

Prereq: ITA 360 or consent of instructor. The major contributions of the Italian Renaissance, including the epic poetry of Boiardo, Pulci, Ariosto, and Tasso; the *Novellieri*; and the lyric poets from Petrarch to Marino. Topics to be announced in *Schedule of Classes*.

667. Studies in Renaissance Thought. Cr. 4(Max. 12)

Prereq: ITA 360 or consent of instructor. Humanism, neoplatonism, social, political, and scientific writings from the age of Petrarch to the time of Galileo. Topics to be announced in *Schedule of Classes*.

679. Studies in the Italian Theatre. Cr. 4(Max. 12)

Prereq: ITA 360 and 361 or consent of instructor. The development of the Italian theatre in the Middle Ages and Renaissance; the modern Italian theatre, or study of a single movement. Topics to be announced in *Schedule of Classes*.

683. Studies in Modern Italian Poetry. Cr. 4(Max. 12)

Prereq: ITA 361 or consent of instructor. Selected studies of movements, themes, periods or poets. Topics to be announced in *Schedule of Classes*.

687. Studies in Modern Italian Fiction. Cr. 4(Max. 12)

Prereq: ITA 361 or consent of instructor. Study of a genre, movement, theme, or period. Topics to be announced in *Schedule of Classes*.

691. Studies in Italian Literature. Cr. 4(Max. 12)

Prereq: ITA 360 and 361 or consent of instructor. Study of a movement, theme or the works of an outstanding writer. Topics to be announced in *Schedule of Classes*.

730. (FRE 730) Introduction to Romance Philology. Cr. 3

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, classifications, and characteristics of the various Romance languages.

870. 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, Petrarch,

Boccaccio), a dominant literary current, or various genres. Topics to be announced in *Schedule of Classes*.

Special Courses

391. Foreign Language Service Practicum. Cr. 2(Max. 4)

Prereq: oral and written proficiency in Italian language with approval of chairperson. No credit for major or group requirements. Two hour weekly visits with foreign-born residents of nursing homes to converse in their native language, gather life histories, serve as translators, read aloud foreign language materials, provide companionship, and enhance social functioning and adjustment.

500. Minor Language Practicum. Cr. 3(Max. 9)

Prereq: consent of graduate adviser. Offered for S and U grades only. No degree credit toward the Ph.D. Controlled application of active language skills for students electing a Ph.D. minor in Italian.

590. Directed Study. Cr. 1-3(Max. 6)

Prereq: undergrad., consent of adviser and chairperson; grad., consent of adviser, chairperson, and graduate officer.

796. Research Project. Cr. 1-3

Prereq: consent of Italian adviser.

799. Master's Essay Direction. Cr. 1-3(3 req.)

Prereq: consent of Italian adviser.

899. Master's Thesis Research and Direction. Cr. 2-8(8 req.)

Prereq: consent of adviser.

Portugese (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.

A dagger prefixed to a 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.

† **501. Elements of Portuguese. Cr. 4**

Prereq: two years of college work in a Romance language or in Latin or consent of chairperson. Accelerated introductory course in the Portuguese language, with readings from the nineteenth and twentieth centuries.

† **502. Advanced Grammar and Readings in Early and Modern Portuguese. Cr. 4**

Prereq: POR 501 or consent of chairperson. Rise and development of Portuguese language and literature, with representative readings from the beginning through twentieth-century authors.

Special Courses

391. Foreign Language Service Practicum. Cr. 2(Max. 4)

Prereq: oral and written proficiency in Portuguese and consent of chairperson. No credit for major or group requirements. Two-hour weekly visits with foreign-born residents of nursing homes to converse in their native language, to gather life histories, to serve as translators, to read aloud foreign language materials, to provide companionship and to enhance social functioning and adjustment.

† 590. Directed Study. Cr. 1-3(Max. 6)
Prereq: undergrad., consent of instructor and chairperson; grad., consent of chairperson, director, and graduate officer.

796. Research Project. Cr. 1-3(Max. 3)
Prereq: consent of instructor.

Romanian (ROM)

101. Elementary Romanian. Cr. 4
Basic elements of grammar and development of oral skills, reading, and writing.

102. Elementary Romanian. Cr. 4
Prereq: ROM 101. Continuation of ROM 101.

Spanish (SPA)

101. Elementary Spanish. Cr. 4
Ear training, grammar, reading, writing, speaking.

102. Elementary Spanish. Cr. 4
Prereq: SPA 101 or placement. Continuation of SPA 101.

199. Comprehensive Elementary Spanish. Cr. 8
No credit after first year college Spanish. Concentrated study of first year elementary Spanish.

201. Intermediate Spanish. Cr. 4
Prereq: SPA 102 or placement. Grammar review; emphasis on compositions, reading, conversation.

202. Intermediate Spanish: Readings in Modern Hispanic Literature. Cr. 4
Prereq: SPA 201 or placement. Conducted entirely in Spanish. Reading and discussion of plays and novels from contemporary peninsular and Spanish-American authors; increases oral and written command of Spanish.

310. Conversation and Composition. Cr. 3
Prereq: SPA 202 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.

410. Advanced Conversation and Composition. Cr. 3
Prereq: SPA 310 or placement.

461. Survey of Spanish Literature I. Cr. 3
Prereq: SPA 202 or placement. Spanish literature from its origin to 1700.

462. Survey of Spanish Literature II. Cr. 3
Prereq: SPA 202 or placement. Continuation of SPA 461. Spanish literature from 1700 to the present.

463. Spanish American Literature: 1492-1888. Cr. 3
Prereq: SPA 202 or consent of department. Literature of Colonial Period and Republics to Modernism.

465. Spanish American Literature: 1888 to the Present. Cr. 3
Prereq: SPA 202 or consent of department. Major literary movements, figures, trends since modernism.

511. Spanish Laboratory Theater. (Lab. 3). Cr. 3(Max. 9)
Prereq: consent of instructor. No credit 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. Grade based on diction and interpretation.

520. Spanish Phonetics. Cr. 3
Prereq: SPA 310 or consent of instructor. A systematic study of Spanish sounds; intensive drill in accurate pronunciation.

530. Diction and Stylistics. Cr. 3
Prereq: SPA 410 or placement. Intensive study of grammar and syntax. Translation of literary texts into Spanish. Free composition and conversation. Conducted in Spanish.

541. Chicano, Cuban, and Puerto Rican Spanish. Cr. 3
Prereq: SPA 202. Practical linguistic description of the Chicano, Cuban, and Puerto Rican varieties of Latin-American Spanish.

555. Society, Institutions, and Culture of Spain. Cr. 3
Prereq: SPA 461 or 462 or consent of instructor. Introduction to Spanish civilization; interrelation of cultural trends in Spanish art and thought.

556. Society, Institutions, and Culture of Spanish America. Cr. 3
Prereq: SPA 461 or 462 or consent of instructor. Panorama of Latin American civilization and culture from the pre-Colombian period to the present.

640. The Structure of Spanish. Cr. 3
Prereq: SPA 520 or consent of instructor. Principles of linguistics and their application to Spanish.

650. Spanish Medieval Literature: Origins to 1500. Cr. 4
Prereq: SPA 461 or 462 or consent of instructor. Main currents and masterworks of Spanish literature from its origins to 1500.

651. Spanish Literature of the Renaissance and Golden Age. Cr. 4
Prereq: SPA 461 or 462 or consent of department. Representative works and authors: 1500 to 1700.

652. Spanish Literature: 1700-1898. Cr. 4
Prereq: SPA 461 or 462 or consent of department. Neo-Classicism, romanticism, realism, naturalism.

653. Spanish Literature: 1898 to the Present. Cr. 4
Prereq: SPA 461 or 462 or consent of department. The generation of 1898; twentieth century literature.

686. Spanish American Novel. Cr. 4
Prereq: SPA 463 or 465 or consent of department. The development, evolution, and flourishing of the Latin American novel during the nineteenth and twentieth centuries, including present trends.

687. Special Topics in Peninsular Spanish Literature. Cr. 4
Prereq: SPA 461 or 462 or consent of department. Variable subjects in the literature of Spain: writers, themes, movements. Topics to be announced in *Schedule of Classes*.

688. Special Topics in Spanish American Literature. Cr. 4(Max. 8)
Prereq: SPA 463 or 465 or consent of department. Variable subjects in the literature of Latin America: genres, writers, themes, movements. Topics to be announced in *Schedule of Classes*.

689. The Generation of 1898. Cr. 3
Prereq: SPA 461 or 462. Leading figures of the Generation of 1898: Azorin, Baroja, Benavente, A. Machado, Unamuno, and Valle

Inclan.

691. The Comedia. Cr. 4

Prereq: SPA 461 or 462 or consent of department. Analysis of representative plays of Lope de Vega, Ruiz de Alarcon, Tirso de Molina, Calderon, and other dramatists of the Golden Age.

692. Cervantes. Cr. 4

Prereq: SPA 461 or 462 or consent of department. A detailed study of *Don Quijote*. Other short works of Cervantes.

693. Spanish Novel of the Nineteenth and Twentieth Centuries. Cr. 4

Prereq: SPA 461 or 462. Representative authors of the main literary movements of the nineteenth and twentieth centuries.

694. Spanish American Poetry. Cr. 4

Prereq: SPA 463 or 465 or consent of department. Leading figures and trends.

695. Short Story in Spanish America. Cr. 4

Prereq: SPA 463 or 465 or consent of department. Major trends and writers of the last two centuries.

696. Contemporary Spanish Peninsular Poetry. Cr. 4

Prereq: SPA 461 or 462 or consent of department. Leading figures and trends.

730. (FRE 730) Introduction to Romance Philology. Cr. 3

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, classifications, and characteristics of the various Romance languages.

740. Old Spanish. Cr. 3

Prereq: SPA 730 or consent of department. Literary language in its development from the earliest texts to 1400.

789. Bibliography, Research Methods, Critical Theory. Cr. 4

Orientation in bibliographical materials and research methods. Introduction to critical theory.

842. Seminar in Hispanic Linguistics. Cr. 4(Max. 12)

Prereq: SPA 541 or consent of instructor. Seminar topics will vary according to the principal divisions of Spanish linguistics: phonology, morphology, lexicography, syntax, and dialectology. Topics to be announced in *Schedule of Classes*.

870. Seminar in the Middle Ages. Cr. 4(Max. 12)

Prereq: graduate major in Spanish or consent of department. Topics to be announced in *Schedule of Classes*.

871. Seminar in the Golden Age. Cr. 4(Max. 12)

Prereq: graduate major in Spanish or consent of department. Topics to be announced in *Schedule of Classes*.

875. Seminar in Modern Spanish Literature. Cr. 4(Max. 12)

Prereq: graduate major in Spanish or consent of department. Topics to be announced in *Schedule of Classes*.

885. Seminar in Spanish American Literature. Cr. 4(Max. 12)

Prereq: graduate major in Spanish or consent of department. Topics to be announced in *Schedule of Classes*.

886. 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

391. Foreign Language Service Practicum. Cr. 2(Max. 4)

Prereq: oral and written proficiency in the Spanish language with consent of chairperson. No credit for major or group requirements. Two hour weekly visits with foreign-born residents of nursing homes to converse in their native language, gather life histories, serve as translators, read aloud foreign language materials, provide companionship, and enhance social functioning and adjustment.

500. Minor Language Practicum. Cr. 3(Max. 9)

Prereq: consent of graduate adviser. Offered for S and U grades only. No degree credit toward Ph.D. Controlled application of active language skills for students electing a Ph.D. minor in Spanish.

590. Directed Study. Cr. 1-3(Max. 6)

Prereq: undergrad., consent of adviser and chairperson; grad., consent of adviser, chairperson, and graduate officer.

796. Research Project. Cr. 1-3(Max. 6)

Prereq: consent of Spanish adviser.

799. Master's Essay Direction. Cr. 1-3(3 req.)

Prereq: consent of adviser.

899. Master's Thesis Research and Direction. Cr. 2-8(8 req.)

Prereq: consent of adviser.

999. Doctoral Dissertation Research and Direction. Cr. 1-16(30 req.)

Prereq: consent of doctoral adviser. Offered for S and U grades only.



SLAVIC AND EASTERN LANGUAGES AND LITERATURES

Office: 443 Manoogian Hall

Chairperson: Frank J. Corliss, Jr.

Professors

Tatjana Cizevska, Edmund Ordon

Associate Professor

Kenneth Brostrom

Assistant Professors

Frank J. Corliss, Jr., Doris V. Johnson

Adjunct Assistant Professor

Larissa Prychodko

Lecturer

Dickran Toumajan

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 East European culture in general and various Slavic literatures in particular.

Foreign Language Group Requirement

The student may satisfy the requirement by passing the first three courses in one language or by a special examination.

Courses: The courses numbered 101, 102, and 201 are essentially a continuum designed to give students command of the basic elements of the language.

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 given by appointment at 443 Manoogian Hall. Students with previous study of the language who fail to take the placement test will not be permitted to elect any course in that language.

* See page 282.

Bachelor of Arts

Polish: Students majoring in Polish are required to complete satisfactorily twenty-two credits in Polish beyond Polish 201 and three credits in Polish history. Courses in Polish will include:

(a) Polish 302, 346, and 445.

(b) Polish 460, 570, and either POL 465 or SLA 565. POL 460 or 570 may be repeated for credit on different topics.

Minor in Polish: Students wishing to obtain a minor in Polish are required to complete seventeen credits in Polish beyond Polish 201. These credits must include Polish 302, 346, 445, 460 (one section), 570 (one section) or 310.

Russian: Students majoring in Russian are required to complete satisfactorily thirty credits in Russian beyond Russian 201 including: Russian 245, 302, 303, 380, 409, 410, 445, 460, 551, 560, 550 or 575.

Minor in Russian: Students wishing to obtain a minor in Russian are required to complete seventeen credits in Russian beyond Russian 202. These credits must include: Russian 245, 302, 303, 445, 460 or 560, and 551 or 575.

Slavic: Students majoring in Slavic are required to complete satisfactorily twenty-four credits in Russian, including 245, 302, 303, and either 409 or 445 and one course in Russian literature, and sixteen credits in Polish or Ukrainian or the equivalent in another Slavic language, and Slavic 565.

All majors are strongly urged to elect courses in cognate fields, such as geography, history, or political science.

Master of Arts in East European Studies

Graduate students pursuing a major in East European studies leading to the Master of Arts degree may earn graduate credits in Polish, Russian or Slavic.

Master of Arts in Russian

Plan B: twenty-nine credits in course work plus an essay.

Plan C: thirty-two 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.

Degree Requirements: All courses must be approved by the student's major adviser.

1. Linguistics: Russian 709, 765 and Slavic 655.
2. Literature: four Russian courses from 720 or 770.*
3. One seminar, i.e. either Russian 870 or 871.
4. 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 chairperson 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

—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. They may not be taken to fulfill the Foreign Language Group Requirement.

Armenian in English Translation (ARM)

- 465. Survey of Armenian Culture and Literature in Translation: Ancient and Medieval Periods. Cr. 3**
Cultural heritage of the Armenian people; their contribution in arts literature, music and folklore.
- 475. Survey of Armenian Culture and Literature in Translation: The Modern Period. Cr. 3**
The great awakening; great expectations shattered by genocide. Dawn of new hope; cultural explosion in homeland and in the diaspora.

Polish in English Translation (POL)

- 275. Survey of Polish Literature in Translation. Cr. 3**
Survey of Polish literature from the Renaissance to the modern period.
- 310. Polish Folklore in Translation. Cr. 3**
Folklore of various regions in Poland, customs and ceremonies relating to seasons of the year and holidays; folk tales, proverbs, dance and songs.
- 465. Survey of Polish Culture in Translation. Cr. 3**
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.
- 565. Polish Civilization and Culture in Translation: Contemporary Poland. Cr. 3**
Relationship to past Polish history.
- 575. Masterpieces of Polish Literature in Translation. Cr. 3**
Reading and discussion of internationally known works of Polish literature from the Renaissance to the twentieth century.

Russian in English Translation (RUS)

- 220. The Russian Writer and Society: in Translation. Cr. 3**
Not open to Russian majors. Readings selected from the nineteenth and twentieth centuries to illustrate the Russian contribution to mankind's perception of itself in literature during the modern era. Dostoevsky, Tolstoy, Chekhov, Solzhenitsyn, and others.
- 221. The Modern Hero in Russian Literature: in Translation. Cr. 3**
Not open to Russian majors. Readings emphasize the relationship between writer and state, the special bond between many Russian writers and the Russian land and people, and the persistent concern in Russian literature with the historical destiny of Russia and mankind in general. Dostoevsky, Chekhov, Solzhenitsyn, Nabokov, and others.
- 222. Contemporary Soviet Life. Cr. 2**
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.

- 270. (ITA 270) Anguish and Commitment: European Existentialist Literature. (SPA 270) (FRE 270) (GER 270). Cr. 3**
A team-taught interdisciplinary study in English of representative works by European existentialist writers: Dostoevsky, Rilke, Kafka, Moravia, Sartre, Camus, Unamuno, Mallea and Lispector.
- 310. Russian Folklore: in Translation. Cr. 3**
Introduction to a wide variety of Russian folklore genres.
- 465. Survey of Nineteenth Century Russian Literature: in Translation. Cr. 3**
Literature of Nineteenth century; special attention to major writers.
- 551. Study of Russian Culture. Cr. 3**
Basic features of Russia's cultural heritage. Specific characteristics of the developments and interconnections of institutional forms of oral and written literature and arts.
- 565. Soviet Literature: in Translation. Cr. 3**
Russian literature in Soviet period.
- 575. Selected Topics: Literature in Translation. Cr. 3(Max. 9)**
A particular writer, genre, theme or topic in Russian literature. Topics to be announced in *Schedule of Classes*.

Slavic in English Translation (SLA)

- 575. Masterpieces of Slavic Literature in Translation. Cr. 3**
Major works in Slavic literatures, excluding Russian, from their beginnings through the nineteenth century.

Ukrainian in English Translation (UKR)

- 465. Survey of Ukrainian Culture and Literature in Translation. Cr. 3**
No credit toward Slavic major. Distinctive features of language, oral and written literatures; development of linguistic, literary, cultural separateness.

FOREIGN LANGUAGE INSTRUCTION

Armenian (ARM)

- 101. Elementary Armenian. Cr. 4**
Introduction to sounds, spelling, vocabulary forms, syntax as basis for reading and conversation.
- 102. Elementary Armenian. Cr. 4**
Prereq: ARM 101 or equiv. Continuation of ARM 101.
- 201. Intermediate Armenian. Cr. 4**
Prereq: ARM 102 or equiv. Study in depth of structure, particularly syntax, based on reading. Oral and written presentation.

¹ See page 633 for interpretation of numbering system, signs and abbreviations.

202. Intermediate Armenian. Cr. 4

Prereq: ARM 201 or equiv. Continuation of ARM 201.

390. Directed Study. Cr. 1-3 (Max. 6)

Prereq: ARM 201 or equiv.; written consent of chairperson. For students desiring additional work in the language at the intermediate level; for programs of work not included in scheduled courses, either in language or literature.

590. Directed Study. Cr. 1-3 (Max. 8)

Prereq: ARM 202 or equiv., written consent of chairperson. Undergraduate credit only. For students who wish credit for program of work not included in regularly scheduled courses, either in language or in literature.

Polish (POL)

101. Elementary Polish. Cr. 4

Sounds, spelling, vocabulary, forms, syntax as basis for reading and conversation.

102. Elementary Polish. Cr. 4

Prereq: POL 101 or equiv. Continuation of POL 101.

106. Elementary Polish. Cr. 3

Offered only through the College of Lifelong Learning. No credit after POL 101. Sounds, spelling, vocabulary, forms, syntax as basis for reading and conversation. Four-semester sequence (POL 106, POL 107, POL 206, POL 207) fulfills Liberal Arts language requirement.

107. Elementary Polish. Cr. 3

Prereq: POL 106 or equiv. No credit after POL 102. Offered only through the College of Lifelong Learning. Continuation of POL 106. Completion of four-semester sequence through POL 207 fulfills Liberal Arts language requirement.

201. Intermediate Polish. Cr. 4

Prereq: POL 102 or equiv. Study in depth of structure, particularly syntax, based on reading. Oral and written practice.

206. Intermediate Polish. Cr. 3

Prereq: POL 107 or equiv. No credit after POL 201. Offered only through the College of Lifelong Learning. Continuation of POL 107. Completion of four semester sequence through POL 207 fulfills the Liberal Arts language requirement.

207. Intermediate Polish. Cr. 3

Prereq: POL 206 or equiv. No credit after POL 201. Offered only through College of Lifelong Learning. Continuation of POL 206. Completion of POL 207 fulfills the Liberal Arts language requirement.

302. Intermediate Polish. Cr. 4

Prereq: POL 201 or equiv. Broader knowledge of Polish grammar and lexicon based on reading of Polish literature.

346. Oral and Written Composition. Cr. 3

Prereq: POL 302 or equiv. Structural features not mastered in beginning courses. Extends mastery of written and spoken Polish.

390. Directed Study. Cr. 1-3 (Max. 6)

Prereq: POL 201 or equiv.; written consent of chairperson. For students desiring additional work in the language at the intermediate level; for programs of work not included in scheduled course, either in language or literature.

445. Language Skills: Advanced Speaking and Writing. Cr. 3

Prereq: POL 346 or equiv. Intensive practical training in use of Polish

sign to achieve fluency of expression.

440. Major Polish Writers and Their Times. Cr. 3 (Max. 6)

Prereq: POL 302 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*.

570. Genre in Polish Literature. Cr. 3 (Max. 6)

Prereq: POL 302 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*.

590. Directed Study. Cr. 1-3 (Max. 8)

Prereq: undergrad., POL 302 or equiv., written consent of chairperson; grad., written consent of chairperson and graduate officer. Graduate major credit only in East European Studies.

Russian (RUS)

100. Russian for Ph.D. Reading Requirement I. Cr. 2

Offered for S and U grades only. No degree credit. Basic Russian grammar and vocabulary; practice in reading.

101. Elementary Russian. Cr. 4

Sounds, spelling, vocabulary, forms, syntax as basis for reading and conversation.

102. Elementary Russian. Cr. 4

Prereq: RUS 101 or equiv. Continuation of RUS 101.

104. Introductory Scientific Russian I. Cr. 4

Introduction to Russian language of science.

105. Introductory Scientific Russian II. Cr. 4

Prereq: RUS 104 or equiv. Continuation of RUS 104.

110. Russian for Ph.D. Reading Requirement II. Cr. 2

Prereq: RUS 100. Offered for S and U grades only. No degree credit. Continuation of basic Russian grammar and vocabulary; readings in the specific field of specialization.

201. Intermediate Russian. Cr. 4

Prereq: RUS 102 or equiv. Structure, particularly syntax, based on reading. Oral and written practice.

208. Informal Russian Conversation. Cr. 1 (Max. 2)

Prereq: RUS 102 or equiv. Offered for S and U grades only. No credit for Russian majors. No credit toward fulfillment of foreign language group requirement. Informal conversation.

245. Language Skills: Speaking and Writing. Cr. 3

Prereq: RUS 201 or equiv. Structural features not mastered in beginning courses. Extends mastery of written and spoken Russian.

302. Intermediate Russian. Cr. 3

Prereq: RUS 201 or equiv. Broader knowledge of Russian grammar and lexicon based on reading of Russian literature.

303. Intermediate Russian. Cr. 3

Prereq: RUS 302 or equiv. Continuation of RUS 302.

380. Introduction to Russian Literature. Cr. 2

Prereq: RUS 201 or equiv. Introduction to the major genres. Various critical approaches leading to the development of techniques of analysis.

390. Directed Study. Cr. 1-3 (Max. 6)

Prereq: RUS 201 or equiv.; written consent of chairperson. For

students desiring additional work in the language at the intermediate level; for programs of work not included in scheduled courses, either in language or literature.

409. Language Skills: Applied Grammar and Syntax I. Cr. 3
Prereq: RUS 201 or equiv. or consent of instructor. Russian as a language system; phonology, morphology, word formation.

410. Language Skills: Applied Grammar and Syntax II. Cr. 3
Prereq: RUS 409 or consent of instructor. Russian as a language system: phrase and sentence types.

445. Language Skills: Advanced Speaking and Writing. Cr. 2
Prereq: RUS 245 or consent of instructor. Intensive practical training in use of Russian idiom to achieve fluency of expression.

460. Survey of Nineteenth Century Russian Literature. Cr. 3
Prereq: RUS 380 or consent of instructor. From precursors of Pushkin to Chekhov's death.

550. Survey of Russian Literature Through the Eighteenth Century. Cr. 2
Prereq: RUS 380 or consent of instructor. Major works and authors from the SLOVO to 1800.

560. Survey of Twentieth Century Russian Literature. Cr. 3
Prereq: RUS 380 or consent of instructor. Russian pre-revolutionary and Soviet literature, 1890 to the present.

590. Directed Study. Cr. 1-3(Max. 8)
Prereq: undergrad., written consent of chairperson; grad., written consent of chairperson and graduate officer. For students who wish credit for program of work not included in regularly scheduled courses, either in language or in literature. Knowledge of Russian required.

709. Structure of Modern Russian. Cr. 4
Prereq: RUS 410 or consent of instructor. Selected topics in phonology, morphology, word formation and derivation.

720. Genre in Russian Literature. Cr. 4(Max. 12)
Prereq: RUS 460 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*.

765. Old Russian. Cr. 4
Prereq: consent of instructor. Development of modern Russian language, beginning with Church Slavic up to the fifteenth century.

770. Major Russian Writers and Their Times. Cr. 4(Max. 12)
Prereq: RUS 460 or equiv. or consent of instructor. Study of a major writer of nineteenth or twentieth centuries. Major works, contemporaries, impact on development of Russian literature. Topics to be announced in *Schedule of Classes*.

799. Master's Essay Direction. Cr. 3
Prereq: consent of adviser.

870. 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*.

871. 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 groups of authors, to be announced in *Schedule of Classes*.

Slavic (SLA)

275. Great Slavic Writers: Selected Topics. Cr. 3
Major Slavic writers in English translation are studied as their works reflect a particular topic, problem or theme.

391. Foreign Language Service Practicum. Cr. 2(Max. 4)
Prereq: oral and written proficiency in Slavic language and consent of program director. Weekly visits to foreign-born residents of nursing homes to use foreign language, gather life histories and serve as translators.

565. Survey of Slavic Culture. Cr. 3
Prereq: one course in East European area, or consent of adviser or instructor. Slavic peoples and their heritage in arts, literature, music, folklore. The common Slavic element, its contribution to world culture. Extra work required of graduate students.

655. Slavic Languages: History and Development. Cr. 4
Prereq: one course in linguistics or consent of instructor.

665. Slavic Romanticism and Its Relation to the West. Cr. 3
Origins and expansion of romantic movement in Slavic literatures. Western impacts; distinctive features and adaptations.

692. Selected Topics in Slavic Studies. Cr. 3(Max. 9)
Prereq: consent of chairperson. Topics to be announced in *Schedule of Classes*.

711. Advanced Language Training. Cr. 1-3(Max. 8)
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.

899. Master's Thesis Research and Direction. Cr. 1-3(8 req.)
Prereq: consent of adviser. Open only to majors in East European Studies.

Ukrainian (UKR)

101. Elementary Ukrainian. Cr. 4
Sounds, spelling, vocabulary, forms, syntax as a basis for reading and conversation.

102. Elementary Ukrainian. Cr. 4
Prereq: UKR 101 or equiv. Continuation of UKR 101.

201. Intermediate Ukrainian. Cr. 4
Prereq: UKR 102 or equiv. Study in-depth of structure and syntax based on reading. Oral and written practice.

302. Introduction to Ukrainian Literature: Nineteenth and Twentieth Centuries. Cr. 4
Prereq: UKR 201 or equiv. Readings of short stories, poetry and essays of representative authors.

390. Directed Study. Cr. 1-3(Max. 6)
Prereq: UKR 201 or equiv.; written consent of chairperson. For students desiring additional work in the language at the intermediate level; for programs of work not included in scheduled courses, either language or literature.

450. Ukrainian Literature of the Nineteenth Century. Cr. 3
Prereq: UKR 302 or equiv. Foremost representatives of classicism, romanticism, realism, and impressionism. Social and political

background.

460. **Survey of Contemporary Ukrainian Literature.** Cr. 3
Prereq: UKR 302 or equiv. Symbolism, futurism, neo-classicism; literature during and after the revolution.

590. **Directed Study.** Cr. 1-3(Max. 8)
Prereq: UKR 302 or equiv; written consent of chairperson. No graduate credit. For students who wish credit for program of work not included in regularly scheduled courses, either in language or in literature.



SOCIOLOGY

Office: 756 Mackenzie Hall

Chairperson: J. Ross Eshleman

Academic Services Officer: Teresa M. Krutell

Professors

Joseph Albin, H. Warren Dunham (Emeritus), J. Ross Eshleman, Frank E. Hartung (Emeritus), Eva Kahana, Donald C. Marsh (Emeritus), Mel J. Ravitz, Ruth A. Rosen, Mary C. Sengstock, Leon H. Warshay, Eleanor P. Wolf

Associate Professors

Edmund G. Doherty, Thomas J. Duggan, Greer Litton Fox, Marshall J. Graney, William C. Yoels

Assistant Professors

Israel J. Barak-Glantz, Carl F. Butts, Clifford J. Clarke, Guy A. Dalto, Robert F. Kelly, Robert G. Newby, Shirley A. Nuss, Frederick C. Patten, Ann W. Sheldon

Adjunct Faculty

Stanley Kupinsky

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 education; (2) those planning to enter a public service profession such as social and urban planning, public administration, nursing, medicine, dentistry, or law; (3) those expecting to engage in work that will require a broad grasp of the nature of society, of public opinion, and of social change such as public affairs, journalism, public relations, communications, marketing, etc.; (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 concerned with sociology as preparations for these careers are encouraged to consult with the undergraduate adviser and with members of the faculty.

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.

Minor Requirements: A minor in sociology is offered for students majoring in other fields. The minor requires at least eighteen credits; course requirements are as follows:

SOC 200.....	Understanding Human Society
SOC 202.....	Social Problems
SOC 405.....	Basic Sociological Theory
SOC 410.....	Social Psychology
SOC 420.....	Methods of Sociological Research
Two Sociology electives	

Major Requirements: Students majoring in sociology are required to elect a minimum of thirty credits in the field, including Sociology 200, 202, 410, 420, 405 (or 605 or 606). Students may not elect more than forty-five 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 210, 506, 519, 520, 535, 536, 537, 617, 631, 638, 639; Economics 102; Geography 520, 565, 613, 624; History 105, 120, 190, 204, 205, 513; Political Science 231, 251, 343, 482; Psychology 130, 201, 331, 465, 535. Undergraduates who plan graduate study in sociology are encouraged to elect the General Mathematical Analysis sequence (Mathematics 201, 501, 502).

— With a Major in Anthropology and Sociology

Major Requirements: Students majoring in anthropology and sociology are required to take Anthropology 210, 211, 520, 527, 531, and 638 or 639; and Sociology 200, 202, 410, 420, 405 (or 605 or 606). A total of at least twenty credits in sociology and twenty credits in anthropology must be completed, but not more than forty-five credits in the combined fields may be elected.

Model Plan for Majors

Junior Year: Sociology 420, 405 (or 605 or 606), 410, 550; elective courses. Students are urged to take Sociology 420 and 405, in particular, in the junior year.

Senior Year: Sociology 382, 540, 570; elective courses.

Master of Arts

Admission: Applications are considered throughout the year. All steps and materials in the application process must be completed at least six weeks before the start of the term for which admission is sought. 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) portions 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 equivalents, must have been taken before the student can be considered for admission; Sociology 200, 202, 410, 420, 405 (or 605 or 606).

Candidacy must be established by the time fifteen credits have been earned.

PLAN A requires thirty-two credits in course work including: a thesis (SOC 899, eight credits); eighteen credits in sociology and related fields; Sociology 720 and 806; and two additional graduate seminars. The eighteen elective credits must include Sociology 525 and either 605 or 606 if the student has not taken them as an undergraduate. A final written or oral examination may be required in sociology at the discretion of the Department.

PLAN B requires thirty-two credits in course work including: an essay (SOC 799, three credits); Sociology 525, 720, and 605 or 606; two seminars, one of which should include actual experience in research in a substantive area through completion of Sociology 801 or an approved alternative; and at least two other Sociology courses.

PLAN C involving thirty-two credits in course work and demonstration of research competence by oral examination is open only to Master's students who intend to enter the doctoral program and who demonstrate exceptional ability, particularly in theory and methods. Consult the Department Chairperson or the Graduate Committee Chairperson for further details.

Master of Arts Program in Applied Sociology and Urban Policy Issues: The goal of this program is to combine an intellectually stimulating academic experience with practical training for careers in public and private policy development, research, and administration. Students receive instruction in sociological theory and methodology (quantitative and qualitative), in-depth training in specific urban issues, and first-hand experience in applied research and policy related internships. The program is designed as a flexible course of study suitable for both full- and part-time students — those wishing to continue their education after some years of absence from the University, mid-career professionals seeking additional training, and post-baccalaureate students.

Requirements: The requirements for the completion of this program or specialty are the same as those for Plan B (see above) except that thirty-seven credits beyond the Bachelor's degree are required including the following thirteen courses:

	Credits
Introduction to Applied Sociology I and II (Two term survey — SOC 658 and 659).....	4
Supervised Internship (Directed Study — SOC 790).....	3
Graduate Seminar in Applied Sociology Sociological Theory (Two courses — SOC 605 or 606, and 705 or 806).....	3
Research Methods and Statistics (Three courses — SOC 525, 625, and 720).....	6
Substantive Area Specializations (Three area courses chosen in consultation with adviser).....	9
Master's Essay (SOC 799).....	9
	3

Doctor of Philosophy

Admission: Applications are considered throughout the year. All steps and materials in the application process must be completed at least six weeks before the start of the term for which admission is sought. Applicants should have a 3.5 h.p.a. in their Master's degree work and at least a 3.5 h.p.a. in the aggregate of their methods and theory course requirements. The following courses, or their equivalents, must have been taken before the student can be considered for admission: Sociology 200, 202, 410, 420, and 405 (or 605 or 606). Additionally, both the aptitude and advanced (sociology) portions of the Graduate Record Examination are required.

The Department requires three recommendations (one from the student's adviser) in addition to the transcripts and other materials required by the Graduate School. Recommendation forms may be secured from the Department office, 756 MacKenzie Hall. 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 admission form is submitted. For more information regarding application procedures see the Master of Arts admissions statement above.

Degree Requirements: All doctoral students must take or have completed Sociology 525, 605 or 606, 625, 626, 720, and 806 or 705. 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; of the remaining two areas, one may be in a cognate area outside the field of sociology. Doctoral applicants are required to have two successive semesters in residence as full-time students as defined by the Graduate School. A detailed description of the doctoral program, including specific requirements, is provided in the brochure *General Information for Doctoral Students in Sociology* available from the Department on request.

Doctoral students are encouraged to engage in teaching and research as a condition for qualifying for a degree.

Assistantships: A limited number of assistantships are available each year. Awards of such assistantships are normally made on or about April 1 for the forthcoming academic year commencing in September. Application for assistantships must be completed no later than March 1. Consult the Department Chairperson or Graduate Committee Chairperson for further details.

COURSES OF INSTRUCTION¹ (SOC)

As prerequisite to all advanced sociology courses SOC 200 is strongly recommended.

200. Understanding Human Society. Cr. 3

Analysis of basic sociological concepts and principles to give the student an understanding of the perspective that sociology brings to the study of human society.

201. Experiencing the Study of Society. Cr. 1

Prereq. or coreq: SOC 200. A laboratory course designed to provide students with the opportunity to experiment with the approaches and tools of the sociologist. Topics may include various simulated society experiences and social research techniques.

202. Social Problems. Cr. 3

Consideration of major contemporary social problems which reveal structural strains, value conflicts, deviations and changes in society.

Analysis of socio-cultural factors creating problems and of possible solutions.

250. (U S 200) Introduction to Urban Studies. (ECO 200) (GEG 200) (HIS 200) (P S 200). Cr. 4

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*.

330. Social Institutions. Cr. 3

Approaches to the study of society and its various institutions. The study of societal institutions as purposive behavior. Institutions may include family, economy, government, education, religion.

335. Religion and Society. Cr. 3

Objective analysis of the interrelations between religious phenomena and social institutions, social structure and behavior.

340. Exploring Marriage and Other Intimate Relationships. Cr. 3

Students examine, from a sociological perspective, issues concerning intimate relationships. Major emphasis on description and analysis of changes in monogamous marriage. Non-traditional marital forms also examined. Focus upon the intimate relationships as they relate to personal, functional concerns of the student.

351. The Nature and Impact of Population on Society. Cr. 3

Birth, death and migration investigated with respect to their social causes and consequences for society and human behavior. The population explosion and its implication for government policy. Recommended for students interested in urban studies, medicine, nursing, political science and history.

382. Criminology: Society, Crime and the Criminal. (CRJ 385). Cr. 3

Criminality as a socio-legal phenomenon. A descriptive analysis of the various agencies of the criminal justice system: police, prosecution, courts, corrections. Interdisciplinary review of criminological thought and theory; methods of reporting and studying crime, victimology, crimes of violence, organized crime, and white collar crime.

390. Directed Study. Cr. 1-3(Max. 6)

Prereq: written consent of full time sociology instructor. Open only to juniors and seniors with not less than sixteen credits in sociology, with a grade of A or B. For students who show evidence of ability and interest, and desire to do advanced reading. Part-time and student instructors are ineligible to supervise directed study.

405. Basic Sociological Theory. Cr. 3

Introduction to sociological theory from a general conceptual framework. Major concepts, theoretical positions and recent trends in theoretical sociology will be considered.

410. Social Psychology. Cr. 3

An introduction to the major issues in social psychology. Topics such as socialization, social perception, self-conceptions and social definitions of selves and situations.

420. Methods of Social Research. Cr. 3

An elementary research methods course that covers the process of doing social research, including research design, data collection techniques, processing and analysis of data, as well as the interpretation of data.

446. Women in Society. Cr. 3

In-depth investigation of the living and working conditions of women in the world today, with a particular emphasis on the impact of socioeconomic changes on the lives of women (including their relationships with men).

¹ See page 633 for interpretation of numbering system, signs and abbreviations

458. Ethnic Groups in Urban America. Cr. 3

Immigrants and their descendants in United States society. Problems of immigrants in American life, the processes and theories of adjustment and assimilation. Designed for students who may work with persons of variant ethnic backgrounds: health personnel, teachers, social workers, as well as sociology majors.

480. Outsiders, Outcasts and Social Deviants. (CRJ 480). Cr. 3

Definition and characteristics of such deviant behaviors as: criminality, mental illness, alcoholism, drug addiction, abortion, prostitution and pornography. Interdisciplinary theories introduced to facilitate understanding of those behaviors, their diagnosis, management, control and prevention.

498. Honors Program in Sociology. Cr. 2-6(Max. 14)

Prereq: junior standing; 3.00 h.p.a. in department; 12 credits in sociology and consent of chairperson. For superior students who can pursue independent program of research and studies.

501. Selected Sociological Topics. Cr. 3

Topics to be announced in *Schedule of Classes*.

521. Qualitative Methods of Social Research. Cr. 3

Prereq: SOC 420 or consent of instructor. Basic assumption and logic of qualitative inquiry; nature of qualitative methods and procedures such as participant observation and content analysis; their use in social research. For students in anthropology, education, nursing, political science, or social work, as well as sociology.

525. Social Statistics. (GEG 510). Cr. 3

Basic techniques for organizing and describing social data, measures of central tendency and dispersion, probability theory and hypothesis testing, tests of significance and confidence intervals, measures of association for two variables.

530. Bureaucracy in Contemporary Society. Cr. 3

Analysis of various types of organizations, emphasizing their structures and activities in industrial and post-industrial societies; emphasis on the United States. Impact of organizations and bureaucracies on individuals and society. For students in business, public administration, and the helping professions and sociology.

531. Formal Organizations in Society. Cr. 3

Analysis of interrelations among organizations and their effect upon society and its various segments. External aspects of organizations.

533. (ANT 533) Arab Society in Transition. Cr. 3

Prereq: ANT 210, SOC 200 or consent of instructor. Distinctive social and cultural institutions and processes of change in the Arab Middle East. Regional variations; background and discussion of current political and economic systems and their relation to international systems.

536. Introduction to Medical Sociology. Cr. 3

Sociological and social psychological examination of health and illness behavior, health care providers, patient-provider-hospital relations, and health policy both in the United States and cross-culturally. Detroit area data and sex roles in medicine are discussed. This course is appropriate for non-sociology students with an interest in health issues (nursing, pre-medicine, and others), as well as for sociology and psychology students.

540. The Family. Cr. 3

An introduction to the sociology of the family: forms of organization, interaction patterns throughout the life cycle, ethnic and cultural differences, conflict and change. Especially useful for students in social work, counseling, family and consumer resources, nursing and education, as well as the other social sciences.

541. Marriage and Family Problems. Cr. 3

Social and historical context of marriage and family problems.

Power, conflict, communication and crisis as they relate to the nature and dynamics of the family. Problem solving techniques; specific family problems: divorce or child abuse.

545. Human Sexual Behavior and Society. Cr. 3

Sexual behavior from a cross-cultural point of view. Historical development and findings of sociological research related to human sexual behavior.

546. Sex Roles: Being Men and Women. Cr. 3

Roles of men and women in society today; how they are changing and the effects of these roles on individuals and society.

550. Urban and Metropolitan Living. (U P 521). Cr. 3

Examination of the development and organization of urban living as it emerged from village to city to metropolitan regions. Consideration given to such topics as the causes of urbanization and its consequences for the ecological and social structure of the city, intergroup relations, crime and poverty in the city.

554. (ANT 506) Urban Anthropology. Cr. 3

Prereq: ANT 210, ANT 520 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.

555. Social Movements and Collective Behavior. Cr. 3

Analysis of the change process through efforts of organized groups, crowds, mobs, riots, social reform efforts, revolutions. Examination of forms of social contagion including fads, rumors, manias. Emphasis on contemporary social movements.

557. Race Relations in Urban Society. Cr. 3

Theoretical orientations applied analytically to enhance an understanding of the patterned structures of privilege in society which are based on race. Inequality, segregation-desegregation, pluralism; social structural frameworks; some attention to social-psychological aspects of topics such as prejudice and racism.

562. Social Aspects in Industry. Cr. 3

The conditions and consequences of industrialization on the organization of work. Topics may include structural patterns in industry, inter-industry comparisons, cross-cultural comparisons, the automobile industry as a special case.

563. American Labor: Blue Collar, White Collar. Cr. 3

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.

567. Leisure Activities in Modern Society. Cr. 3

Trends in available leisure hours and possible future developments. Relationships of leisure activities to major social roles and to social class and occupation.

570. Inequality and Social Class. Cr. 3

Analysis of the inequalities in societies, the United States and others. Causes of social class differences; varying structures of stratification; consequences for the individual, ethnic groups, political power; the conditions under which mobility occurs.

576. Society and Aging. Cr. 3

Personal, interpersonal and institutional significance of aging and age categories. Sociological dimensions of aging based on physical, social-psychological, and demographic backgrounds.

581. Law in Human Society. (CRJ 581). Cr. 3

Law and the legal structure in its social context. The development, enforcement and interpretation of law; emphasis on the American system of government. Reciprocal effects of law and the society in which

it develops; comparative analysis. Designed for pre-law, criminal justice, and political science students, as well as for sociology majors.

583. Juvenile Delinquency. Cr. 3

Nature, incidence, causes, treatment, prevention and control of juvenile delinquency. The juvenile justice system as distinguished from the criminal justice system.

584. Penology: Punishment and Corrections in the United States. Cr. 3

Review of the history and philosophy of punishment and corrections in the United States and Europe. Major concepts dealing with the development, diffusion and utilization of prisons and their alternatives, i.e., probation and community based corrections, as means of dealing with convicted criminals; theory, research and practice. Field trips to correctional institutions may be required.

587. Violence in the Family. Cr. 3

Analysis of the nature of violence in family and family-like relationships; prevalence and types of family violence; social and social psychological correlates of violence in families; methods of dealing with violent families.

593. (P S 593) Public Use Data and Information Systems. Cr. 4

Prereq: introductory social science course. Data and information systems useful in social science; emphasis on federal sources; including decennial and special censuses. Applications in specific disciplines. Familiarity with standard routines for computer retrieval/analysis, geocoding, and indicator construction.

605. Sociological Theory Before 1920. Cr. 3

Prereq: SOC 200 or consent of instructor. Sociological theorists before 1920, their thought and the historical context in which such thought developed.

606. Sociological Theory Since 1920. Cr. 3

Prereq: SOC 200 or consent of instructor. Historical and Theoretical analysis of sociological thought in the present century. Current trends in sociological theory.

610. The Individual in Society. Cr. 3

Prereq: one introductory social psychology course. Interrelations of personality and social systems. Topics may include: impact of class, race or sex on the individual; modal personality; cognitive performances; socialization; group dynamics.

625. Analysis of Multivariate Data. Cr. 3

Prereq: SOC 525. Elaboration of contingency tables, analysis of variance, multiple and partial correlation and multiple regression, analysis of covariance.

626. Advanced Multivariate Analysis and Model Construction. Cr. 3

Prereq: SOC 525. Causal models for multi-dimensional contingency tables, path analysis techniques, introductory factor analysis, Markov chains, selected topics.

637. Sociology of Knowledge. Cr. 3

Socio-cultural conditions underlying human knowledge and its employment. Foundations of myth, ideals, ideologies; other ways of thought in the social process. Significant contributors to the field.

638. Sociology of the Arts. Cr. 3

Social and cultural factors in background and development of the arts. Examples from architecture, visual arts, music, literature. Techniques and theoretical approaches.

640. Family Theories and Research. Cr. 3

Major sociological and social psychological theories relevant to the study of the family combined with a comprehensive survey of family research; these theories and research findings applied to contemporary

family issues and family policy.

655. Dynamics of Urban Social Action. (UP 645). Cr. 3

The nature and forms of social action. Practical examples of organization and planning; uses of power, non-violence, violence and relationships of these actions to achieving social change.

656. Urban Change and Social Planning. (UP 625). Cr. 3

Theories of social change; possibilities and limitations of social planning experiments; case studies from industry, government, community planning. Social techniques aimed at promoting or resisting planned social change. Field trips to Detroit industry, government planning departments.

658. Introduction to Applied Sociology I. Cr. 2

Prereq: graduate students or advanced social science undergraduates. The logic of applied sociological analysis, policy research design and ethical issues characteristic of applied sociology.

659. Introduction to Applied Sociology II. Cr. 2

Prereq: graduate students or advanced social science undergraduates. Continuation of SOC 658. Critical examination of a series of applied social research projects, and of the contributions of allied social sciences and professions such as anthropology, economics, political science, and law. Development of writing skills for policy makers; project in applied sociology.

660. Economic Sociology. Cr. 3

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.

663. Sociology of Work and Occupations. Cr. 3

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.

677. Sociology and Institutional Care. Cr. 3

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.

679. Social Problems of Aging: Topics in Social Gerontology. Cr. 3

Analysis of various social problems and the manner in which they affect the aged, including: crime and the elderly, economic problems of the elderly, the family and the aged.

686. Organized Crime: Its History and Social Structure. (CRJ 686). Cr. 3

Prereq: SOC 382. Open only to juniors, seniors and graduate students. Analysis of the history and social structure of organized crime. Contemporary national and international forms of criminal enterprises.

688. Sociology and Social Psychology of Abnormal Behavior. Cr. 3

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.

694. (ANT 618) Theory and Problems of Emergent Countries. Cr. 3(Max. 6)

Prereq: SOC 200 or ANT 210. Underdeveloped and developing countries. Emergent nationalism and socio-cultural factors affecting change. Cultural, demographic, institutional, technological aspects.

695. Political Sociology. Cr. 3

Analysis of the nature, distribution and use of power in societies. The changing nature of political forces at the local, national and international levels. Political parties, voting trends, public opinion, the relationship with social class and the economy.

701. Special Topics. Cr. 2-6

Topics to be announced in *Schedule of Classes*.

705. Comparative Schools of Sociological Theory. Cr. 3

Prereq: SOC 605 or 606 or equiv. or consent of instructor. Analysis of theories in sociology, current theories and their antecedents, from a schools perspective.

720. Advanced Survey of Approaches and Techniques of Social Research. Cr. 3

Advanced conceptual treatment of the primary concerns of social research: perspectives and types of social research, research designs, sampling techniques, data-gathering techniques and instrument construction, data analysis and presentation, interpretation and reporting of the results.

790. Directed Study. Cr. 2-6(Max. 6)

Prereq: written consent of adviser and graduate officer. Not open to doctoral students.

795. Directed Teaching in Sociology. Cr. 1

Prereq: written consent of adviser and graduate officer. Students work under the direction of a member of the graduate faculty; planning lectures, handling class discussions, preparing exams, and grading introductory sociology students.

799. Master's Essay. Cr. 3

Prereq: consent of adviser.

800. The Logic of the Scientific Study of Society. Cr. 3

Philosophical and logical foundations underlying the methodology of research in the behavioral sciences. Systematic inquiry into the following: behavioral science perspectives, concepts and conceptualization, operationalization and measurement, the uses and abuses of statistics, models, theory and theory construction, description, explanation, prediction, control; the role of values and ethical issues in social research.

801. Practicum in Sociological Research. Cr. 3

Prereq: graduate standing. Experience in synthesizing theory and research through the actual conduct of social inquiry.

806. Seminar in Sociological Theory. Cr. 3

810. Seminar in Social Psychology. Cr. 3

821. Seminar in Methods of Social Research and Statistics. Cr. 3

830. Seminar in Social Organizations. Cr. 3

840. Seminar in Sociology of the Family. Cr. 3

Prereq: graduate standing in sociology or prior coursework in marriage/family area.

845. Seminar in Sociology of Women and Social Change. Cr. 3

Prereq: consent of instructor.

850. Seminar in Urban and Metropolitan Sociology. (U P 801). Cr. 3

855. Seminar in Social Change and Development. Cr. 3

870. Seminar in Social Stratification and Inequality. Cr. 3

875. Seminar in Gerontology. Cr. 3

Prereq: graduate standing; SOC 576.

876. Seminar in Sociology of Women and Medicine. Cr. 3

Prereq: consent of instructor.

880. Seminar in Deviance and Criminology. (CRJ 778). Cr. 3

899. Master's Thesis. Cr. 2-8(8 req.)

Prereq: consent of adviser.

990. Directed Study. Cr. 2-6(Max. 6)

Prereq: consent of adviser and graduate officer. Open only to doctoral students.

999. Doctoral Dissertation Research and Directed Study. Cr. 1-16

Prereq: consent of doctoral adviser. Offered for S and U grades only.



SPEECH COMMUNICATION, THEATRE AND JOURNALISM

Office: 585 Manoogian Hall

Chairperson: Edward J. Pappas

Academic Services Officer: Victoria Dallas

Professors

Eugene H. Bahn (Emeritus), George V. Bohman (Emeritus), Bernard L. Brock, N. Joseph Calarco, Rupert L. Cortright (Emeritus), Robert T. Hazzard, William R. Leith, Leonard Leone (Distinguished), Edward J. Pappas, Raymond Ross, Russell E. Smith, Geneva Smitherman, James B. Tintera, Patrick Welch, George W. Zeigelmueller

Associate Professors

Lynn S. Bliss, Mervyn L. Falk, Robert G. Johnston, J. Daniel Logan, Robert E. McGill, James S. Measell, Anthony B. Schmitt, Lawrence Silverman, John W. Spalding, Jack W. Warfield, Gary M. Witt, Elizabeth G. Youngjohn (Emeritus)

Assistant Professors

Steven M. Alderton, William A. Boyce, Dorothy E. Dreyer, Philip Fox II, Lawrence Frey, Linda Gillum, Jack B. Gladden, Nira J. Pullin, Von H. Washington

Instructors

Jacqueline F. Durbin, Marilyn A. Renaud, Cathy Williams

Lecturers

Wilbur Elston, Kristine V. Sbaschnig, Alfred C. Snider

Theatre Support Staff

Blair V. Anderson, Helen Markovitch, Margaret E. Spear

Adjunct Professors

Herbert J. Bloom, C. Walter Hodges, William G. McEvitt

Adjunct Associate Professors

Richard M. Cole, Joseph C. Honet, Donald I. Kapetansky, Richard A. Litt

Cooperating Faculty, Department of Audiology, School of Medicine

Doris V. Allen, George E. Lynn, Anthony A. Muraski, William Rintelmann, Dale O. Robinson

DEGREE PROGRAMS

*Bachelor of Arts—with a major in speech
communication and theatre*

*Bachelor of Arts—with a major in mass
communications*

*Master of Arts—with a major in speech
communication and theatre*

Master of Fine Arts—with specialization in theatre

*Doctor of Philosophy—with a major in speech
communication and theatre, and emphases on
communication and rhetorical processes;
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. The variety of degree programs provides broad liberal arts education as well as specific career training.

SPB 200—Effective Speech—is designed for those who wish to improve their general communicative ability. Courses in voice and articulation, public speaking, discussion, debate, oral interpretation, theatre and mass communications offer additional opportunities to study and practice general communication skills.

Undergraduate and graduate majors may prepare for careers in public and private organizations; industrial relations; government; sales and personnel; community and public relations; radio, television, film and journalism; drama and theatre; speech pathology; and teaching.

Graduate programs within the department offer curricula for specialized study and career training in communication and rhetorical processes; communication disorders and sciences; audiology; oral interpretation; theatre; and mass communications.

The department sponsors a large number of student activities which are available to all University students. These include intercollegiate debate, contest reading and speaking, the University Theatre, group reading programs, and the University Readers' Bureau. Wayne State University has undergraduate chapters of The Society of Professional Journalists, Sigma Delta Chi, Women in Communication, Forensic Union, Delta Sigma Rho-Tau Kappa Alpha, and the Wayne State University Speech, Hearing and Language Association.

The Speech and Language Center offers services for those with disorders of voice, articulation, rhythm and language. Assistance is also available in clinical diagnosis and training for the hearing impaired through the Department of Audiology, School of Medicine, SE University Health Center, 4201 St. Antoine.

Bachelor of Arts With a Major in Speech Communication and Theatre

Major Requirements: Students may follow undergraduate programs in the following areas of the department: communication and rhetorical processes (SPC); communication disorders and sciences (SPD); oral interpretation (SPO); and theatre (SPT). Also, students may elect to develop a program of study in general speech and/or speech communication education. Students should consult advisers in their area of interest.

It is expected that a major will complete at least thirty but not more than forty-six credits in the department. Any coursework elected over the forty-six credit maximum must have prior approval of both adviser and chairperson if the additional credits are to count toward the degree (120 credits). A proper distribution of courses approved by the student's adviser is important. It is desirable that students intending to major in speech communication begin their work in the department

in their freshman year. Courses in the major or specialization should be selected in consultation with an adviser. Although students do not officially declare a major prior to the junior year, advising is available to freshmen and sophomores.

In consultation with an adviser, students may elect from the following courses, to partially fulfill the humanities group requirement in the College of Liberal Arts: SPC 316, 321; SPF 201, 202, 502; SPR 301; SPT 101, 102, 103, 207, 510, 511, and 512.

The following six specializations lead to the degree Bachelor of Arts with a major in Speech Communication and Theatre:

Communication and Public Relations (SPC): Undergraduate majors in this specialization must elect the following *required* courses:

	<i>credits</i>
SPB 200 – Effective Speech.....	3
SPC 210 – Persuasive Speaking.....	3
SPC 220 – Interpersonal Communication.....	3
* SPC 316 – Contemporary Persuasive Campaigns and Movements.....	4
SPC 317 – Fundamentals of Public Relations.....	3
* SPC 321 – Communication: Concepts and Contexts.....	4
SPC 325 – Introduction to Organizational Communication.....	3
SPC 516 – Communication and Public Relations.....	3
SPC 520 – Group Communication and Human Interaction.....	3
SPJ 210 – News Reporting (Prereq: ENG 301).....	4
SPJ 321 – News Editing.....	4
SPR 201 – Survey of Mass Communications.....	4

In addition to the forty-one required minimum credits outlined above, an adviser in the area of communication and rhetorical processes may be consulted in regard to electing courses with additional emphasis on public relations and mass media, marketing, writing, and special interests. Direct inquiries to 531 Manoogian Hall (577-2946).

Communication Disorders and Sciences (Speech and Language Pathology) (SPD): Undergraduate majors in this specialization should note that a master's degree is required for clinical certification by the American Speech-Language-Hearing Association. Study in this major field at the undergraduate level is considered to be pre-professional; it includes the following *required* courses for a Bachelor of Arts:

	<i>credits</i>
SPD 508 – (SED 508) Phonetics.....	3
SPD 509 – (SED 533) Anatomy and Physiology of Speech Mechanism.....	3
SPD 514 – (SED 507) Introduction to Speech Science.....	3
SPD 530 – (SED 530) Introduction to Speech Pathology.....	4
SPD 531 – (SED 531) Clinical Methods in Speech Pathology.....	3
SPD 532 – (SED 536) Normal Language Acquisition and Usage.....	3
SPD 536 – (SED 534) Clinical Practice in Speech Pathology (elect twice).....	2
SPD 638 – (SED 638) Diagnostic Tests in Communication Disorders.....	3
SPD 660 – (SED 660) Introduction to Articulation Disorders.....	3
SPD 661 – (SED 661) Introduction to Stuttering.....	3
SPD 662 – (SED 662) Introduction to Voice Disorders and Cleft Palate.....	3
SPD 664 – (SED 664) Language Pathology: Etiology and Diagnosis.....	3
SPM 540 – (SED 540) Introduction to Audiology.....	3
SPM 542 – (SED 551) Speech Reading and Auditory Training.....	4
SPM 544 – (SED 541) Practicum in Audiology.....	1

Liberal Arts majors will also need to elect SPB 200 and complete all liberal arts group requirements (see page 222). The student in speech pathology also has the option of working towards the Bachelor of Science degree granted by the College of Education. It is recommended that the Michigan Teaching Certificate be earned at the undergraduate level, although certification is not granted until completion of work for the Master's Degree, which is required before clinical certification is awarded. Transfer into the College of Education is normally at the beginning of the junior year.

* These two courses partially fulfill the College of Liberal Arts humanities group requirement.

An adviser in the College of Education should be consulted early in the student's program so that coursework is taken in the proper sequence for both the B.S.Ed. degree and the Michigan Teaching Certificate. The College of Education also requires a *planned minor* elected in consultation with an adviser in the College of Education. Speech Pathology majors in the College of Education are required to take SPD 632 (SED 632), Organization and Methods in Speech Pathology, 3 credits.

Direct inquiries to 555 Manoogian Hall (577-3337).

General Speech: Advisers in this specialization will develop programs for students in various areas related to speech communication, such as pre-law, pre-theology, and other special interests. Undergraduate majors in this specialization of general speech must elect:

	<i>credits</i>
SPB 200 – Effective Speech.....	3
SPC 210 – Persuasive Speaking.....	3
<i>or</i>	
SPC 211 – Argumentation and Debate.....	3
SPO 204 – Voice and Articulation.....	3
SPO 250 – Beginning Oral Interpretation.....	3

A minimum of thirty credits is required for the major in addition to the twelve required credits above. Additional credits should be elected in consultation with an adviser to reflect a broad general knowledge in all areas of the discipline. Direct inquiries to 585 Manoogian Hall (577-2943).

Oral Interpretation (SPO): Undergraduate majors in this specialization must elect:

	<i>credits</i>
SPB 200 – Effective Speech.....	3
SPC 210 – Persuasive Speaking.....	3
<i>or</i>	
SPC 211 – Argumentation and Debate.....	3
SPO 204 – Voice and Articulation.....	3
SPO 250 – Beginning Oral Interpretation.....	3
One additional course in another area of the Department.....	3-4

A minimum of thirty credits is required for this major. In addition to the 15-16 credits outlined above, courses should be elected from the following in consultation with an adviser in this area:

	<i>credits</i>
SPD 350 – Advanced Oral Interpretation.....	3
SPO 505 – Advanced Voice and Articulation.....	3
SPO 550 – Performance of Poetry.....	3
SPO 553 – Interpretation of Prose Fiction.....	3
SPO 554 – Interpretation of Dramatic Literature.....	3
SPO 555 – Oral Reading Workshop.....	1 (Max.3)
SPO 556 – Performance of Classical Literature.....	3 (Max. 6)
SPO 558 – Interpreter's Theatre.....	3
SPO 559 – Oral Interpretation of Special Types of Literature.....	3
SPO 656 – Oral Interpretation Practicum.....	2

Majors combining oral interpretation and theatre should consult early with an adviser to assure that a balanced program in both disciplines is achieved. Theatre courses may be elected, in consultation with an adviser, in the two main concentrations of theatre: performance (acting and directing), and production (scene and costume design, and technical theatre). Other oral interpretation combinations are possible in communication theory, rhetoric, and mass communication (broadcasting or film studies). Direct inquiries to 585 Manoogian Hall (577-2943).

Speech Communication Education: Undergraduate majors in this specialization must elect:

SPB 200 — Effective Speech.....	3
SPC 210 — Persuasive Speaking.....	3
SPC 211 — Argumentation and Debate.....	3
SPO 204 — Voice and Articulation.....	3
SPO 250 — Beginning Oral Interpretation.....	3

A minimum of thirty credits, in addition to the fifteen credits outlined above, is required for the major. It is recommended that coursework be elected from among the following in consultation with an adviser in the area:

SPD 530 — (SED 530) Introduction to Speech Pathology.....	3
SPE 606 — (S E 606) Teaching Communication at the Secondary Level.....	3
SPE 607 — Directing Forensics.....	3
SPR 201 — Survey of Mass Communications.....	4
SPT 203 — Introduction to Acting.....	3
SPT 507 — Play Production for School and Community.....	3

In addition, a strong minor (18-24 credits) in the Department of English is recommended. Consult an adviser in the College of Education regarding requirements for the Michigan Teaching Certificate. Direct inquiries to 585 Manoogian Hall (577-2943).

Theatre (SPT) (B.A. Program): Undergraduate majors in this specialization must elect;

SPB 200 — Effective Speech.....	3
SPC 210 — Persuasive Speaking.....	3
or	
SPC 211 — Argumentation and Debate.....	3
SPO 204 — Voice and Articulation.....	3
SPO 250 — Beginning Oral Interpretation.....	3

The major requires a minimum of thirty credits in addition to the twelve credits outlined above. Additional coursework should be elected from the two theatre concentrations: performance (acting and directing), and production (scene and costume design, and technical theatre); consult the Bachelor of Arts adviser in theatre. Direct inquiries to 95 W. Hancock (577-3508).

Bachelor of Arts With a Major in Mass Communications

Mass Communications majors must elect one of the following sequences of specialization: Sequence I—Print Journalism; Sequence II —Public Relations/Advertising; Sequence III—Electronic Journalism; Sequence IV—Broadcasting; or Sequence V—Film Studies.

Journalism Undergraduate Scholarships and Loan Funds: Journalism majors of junior standing are eligible for scholarships, including the W. Sprague Holden Memorial Scholarship; the George M. and Mable Slocum Foundation Scholarship; and the Women in Communications Scholarship. Candidates should apply at the Journalism Office, 163 Manoogian. One loan fund gives first preference to journalism students: that established in memory of Arthur Dorzaio (1965), former executive news editor of the *Detroit Free Press*, and associate professor of journalism at Wayne State University. Interest-free loans to students from these and other funds are administered by the University Office of Student Financial Aids, 222 Administrative Services Building.

Major Requirements

1. The regular College of Liberal Arts requirements in English, foreign language and natural sciences. In sequences I, II, and III, English 301 (Techniques of Expository Writing) is required as one of

the English courses; in sequence I, English 301 and English 302 is recommended as one of the science courses.

In sequences I, II and III: an additional seven to eleven credits of required coursework above the group requirements in social science. In these sequences, grades of C or better in courses designated as 'Required Journalism Courses' are required for graduation.

In sequences IV and V: an additional twelve credits of electives above the group requirements in social science and/or humanities.

Asterisks (*) indicate courses which partially fulfill the College of Liberal Arts Group Requirement in Humanities.

2. The basic CORE COURSE required in all five sequences is:

	<i>credits</i>
SPR 201 — Survey of Mass Communications.....	4

The following CORE COURSES may be required or serve as electives, depending on the sequence elected:

* SPF 201 — Introduction to Film.....	4
SPJ 200 — Contemporary American Press.....	3
SPJ 500 — History of American Journalism.....	3
* SPR 301 — Mass Media Appreciation and Criticism.....	4

3. An adviser in Mass Communications *must be consulted* for verification of requirements in the following sequences:

Sequences I, II and III: See an adviser in Journalism, 163 Manoogian.
Sequences IV and V: See an adviser in Broadcasting-Film Studies, 585 Manoogian.

PRINT JOURNALISM (Sequence I)

Required CORE: (10 credits)

	<i>credits</i>
SPJ 200 — Contemporary American Press.....	3
SPJ 500 — History of American Journalism.....	3
SPR 201 — Survey of Mass Communications.....	4

Required Journalism Courses: (18 credits)

SPJ 210 — News Reporting.....	4
SPJ 310 — Public Affairs Reporting.....	4
SPJ 321 — News Editing.....	4
SPJ 400 — Journalism Internship.....	3
SPJ 502 — Law of the Press.....	3

Elective: (3-4 credits)

One journalism elective not included elsewhere in program.

Second Concentration (or major): (15-20 credits)

Students in sequence I must elect a second concentration (or major) of at least five courses in any of the majors or co-majors in the College of Liberal Arts. These five courses are *in addition to* the other required courses of the College of Liberal Arts.

Total credits: 46-52 (minimum).

PUBLIC RELATIONS/ADVERTISING (Sequence II)

Required CORE: (10-12 credits)

	<i>credits</i>
SPR 201 — Survey of Mass Communications.....	4
TWO Additional CORE courses.....	6-8

Required Journalism Courses: (18 credits)

SPJ 210 — News Reporting.....	4
SPJ 321 — News Editing.....	4
SPJ 400 — Journalism Internship.....	3
SPJ 502 — Law of the Press.....	3

SPJ 341 — Radio and TV News Reporting	
OR	
SPJ 448 — Photojournalism	4
OR	
SPJ 521 — Newsletters & Corporate Publications	3

Elective: (3-4 credits)

One journalism elective not included elsewhere in program.

Specialization: (15-16 credits)

credits

Either of the following two courses:

MKT 646 — Public Relations of Business	
OR	
SPC 317 — Fundamentals of Public Relations	3

Four of the following thirteen courses:

credits

MKT 530 — Marketing Management	3
MKT 549 — Principles of Advertising	3
MKT 550 — Advertising Copy	3
MKT 551 — Advertising Media Planning	3
MKT 585 — Promotion Strategy	3
SPB 200 — Effective Speech	3
SPC 210 — Persuasive Speaking	3
* SPC 316 — Contemporary Persuasive Campaigns and Movements	4
SPC 325 — Introduction to Organizational Communication	3
SPC 501 — Psychology of Human Communication	3
SPC 504 — Communication in the Black Community	3
SPC 510 — Speech Writing	3
SPC 516 — Communication and Public Relations	3

Total credits: 45-50 (minimum)

ELECTRONIC JOURNALISM (Sequence III)

Required CORE: (10-11 credits)

credits

SPR 201 — Survey of Mass Communications	4
SPJ 500 — History of American Journalism	3
ONE Additional CORE course	3-4

Required Journalism Courses: (18 credits)

SPJ 210 — News Reporting	4
SPJ 310 — Public Affairs Reporting	4
SPJ 341 — Radio and Television News Reporting	4
SPJ 400 — Journalism Internship	3
SPJ 502 — Law of the Press	3

Elective: (3-4 credits)

One journalism elective not included elsewhere in program.

Specialization: (16-17 credits)

SPB 200 — Effective Speech	
OR	
SPO 204 — Voice and Articulation	3

Four of the following five courses:

SPR 211 — Radio and Television Announcing	3
SPR 221 — Writing for Radio-Television-Film	3
SPR 531 — Radio Production	4
SPR 541 — Television Production I	4
SPR 551 — Mass Communications and Society	3

Total credits: 47-51 (minimum)

BROADCASTING (Sequence IV)

Required CORE: (8 credits)

credits

SPR 201 — Survey of Mass Communications	4
* SPR 301 — Mass Media Appreciation and Criticism	4

Specialization: (17 credits)

SPR 211 — Radio and Television Announcing	3
SPR 221 — Writing for Radio-Television-Film	3
SPR 531 — Radio Production	4
SPR 541 — Television Production I	4
SPR 551 — Mass Communications and Society	3

Electives: (10 credits)

Students in sequence IV must elect a minimum of ten credits in the department in consultation with an adviser.

Total credits: 35 (minimum).

FILM STUDIES (Sequence V)

Required CORE: (8 credits)

credits

* SPF 201 — Introduction to Film	4
SPR 201 — Survey of Mass Communications	
OR	
* SPR 301 — Mass Media Appreciation and Criticism	4

Specialization: (21-22 credits)

* SPF 202 — History of Film	4
SPF 525 — Screenwriting	3
SPF 543 — Film Production I	4
* SPF 502 — Studies in Film History	
OR	
SPF 544 — Film Production II	4
SPF 506 — Documentary and Non-Fiction Film	4
OR	
SPR 551 — Mass Communication and Society	3
SPR 221 — Writing for Radio-Television-Film	3

Electives: (6 credits)

Students in sequence V must elect a minimum of six credits in the department in consultation with an adviser.

Total credits: 35-36 (minimum).

Bachelor of Fine Arts With Specialization in Theatre

The Bachelor of Fine Arts degree is available to students specializing in theatre. This specialization is an intensive pre-professional curriculum that must be followed in consultation with the B.F.A. adviser in theatre. This 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: Certain prerequisites and sequences of courses must be taken in the freshman and sophomore years for a student to successfully petition for admission to the B.F.A. program. Therefore, it is essential that students considering this curriculum consult the B.F.A. adviser early in their freshman year. Transfer students should contact the B.F.A. adviser immediately.

After successful completion of SPT 201, 202, 203, and 204, students may submit their petition. Admission to the performance or production programs 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 the Group Requirements as soon as possible. A minimum of 120 credits must be completed for the degree, of which 60 to 80 must be elected in Speech Communication, Theatre and Journalism. Each student shall complete SPB 200, SPO 250 and SPT 101, 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.

Minors

The following six minors available in this department should be pursued in consultation with an adviser in each of the specialized areas of concentration. While the minor designation does not appear on the diploma, it will be noted on the student's transcript.

MINORS IN SPEECH COMMUNICATION AND THEATRE

—Communication and Rhetorical Processes: (17 credits required)

	credits
SPB 200 — Effective Speech.....	3
SPC 210 — Persuasive Speaking.....	3
SPC 220 — Interpersonal Communication.....	3
SPC 316 — Contemporary Persuasive Campaigns and Movements.....	4
SPC 321 — Communication: Concepts and Contexts.....	4

Elective: (2-3 credits)

One additional SPC course in consultation with an adviser in the area.

Total credits: 19-20

—Oral Interpretation: (9 credits required)

	credits
SPO 204 — Voice and Articulation.....	3
SPO 250 — Beginning Oral Interpretation.....	3
SPO 350 — Advanced Oral Interpretation.....	3

Electives: (9-12 credits)

SPO 505 — Advanced Voice and Articulation.....	3
SPO 550 — Performance of Poetry.....	3
SPO 553 — Interpretation of Prose Fiction.....	3
SPO 554 — Interpretation of Dramatic Literature.....	3
SPO 556 — Performance of Classical Literature.....	6
SPO 558 — Interpreter's Theatre.....	3
SPO 559 — Oral Interpretation of Special Types of Literature.....	3
SPO 656 — Oral Interpretation Practicum.....	2

Total credits: 18-21

MINORS IN MASS COMMUNICATION

—Broadcasting: (8 credits required)

	credits
SPR 201 — Survey of Mass Communications.....	4
SPR 301 — Mass Media Appreciation and Criticism.....	4

Electives: 10-13 credits

SPR 211 — Radio and Television Announcing.....	3
SPR 221 — Writing for Radio-Television-Film.....	3
SPR 531 — Radio Production.....	4
SPR 541 — Television Production I.....	4
SPR 551 — Mass Communications and Society.....	3

Total credits: 18-21

—Film Studies: (8 credits required)

	credits
SPF 201 — (ENG 245) Introduction to Film.....	4
SPR 201 — Survey of Mass Communications.....	4
or	
SPR 301 — Mass Media Appreciation and Criticism.....	4

Electives: (10-13 credits)

SPF 202 — History of Film.....	4
SPF 502 — Studies in Film History.....	4
SPF 506 — Documentary and Non-Fiction Film.....	4
SPF 525 — Screenwriting.....	3
SPF 543 — Film Production I.....	4
SPR 221 — Writing for Radio-Television-Film.....	3

Total credits: 18-21

—Journalism: (10 credits required)

	credits
SPJ 200 — Contemporary American Press.....	3
SPJ 210 — News Reporting.....	4
SPJ 502 — Law of the Press.....	3

Electives: (10-12 credits)

SPJ 310 — Public Affairs Reporting.....	4
SPJ 321 — News Editing.....	4
SPJ 341 — Radio and Television News Reporting.....	4
SPJ 445 — Writing the Column, Editorial and Review.....	4
SPJ 446 — Magazine and Feature Writing.....	4
SPJ 448 — Photojournalism.....	4
SPJ 500 — History of American Journalism.....	3
SPJ 508 — Mass Communications in a Foreign Culture.....	3
SPJ 521 — Newsletters & Corporate Publications.....	3
SPJ 531 — Investigative Reporting.....	3
SPJ 601 — Senior Seminar.....	3

Total credits: 20-22

MINOR IN THEATRE: (15 credits required)

	credits
SPT 101 — Introduction to the Theatre.....	3
or	
SPT 103 — Black Theatre: An Introduction.....	3
SPT 102 — Structure and Analysis of the Drama.....	3
SPT 203 — Introduction to Acting I.....	3
and	
SPT 204 — Introduction to Acting II.....	3
or	
SPT 205 — Problems in Performing Afro-American Drama I.....	3
and	
SPT 206 — Problems in Performing Afro-American Drama II.....	6
SPT 213 — Stagecraft.....	3
or	

SPT 306 — Stage Lighting	
or	
SPT 503 — Introduction to Design for the Theatre	3

Electives: (4-7 credits)

	credits
SPT 501 — Theatre Costuming I	3
SPT 510 — Theatre History I	4
SPT 511 — Black Theatre: Literature and Criticism	2
SPT 512 — Development of the Drama I	3
SPT 517 — Modern Acting Styles and Theories	3
SPT 610 — Classical Acting Styles and Theories	3

Total credits: 19-22

Master of Arts With a Major in Speech Communication and Theatre

In the master's degree program, the minimum requirement for the degree is thirty-two credits under Plan A or B, and a minimum of thirty-five credits under Plan C.

Plan A: Thirty-two credits. Twenty-four credits in course work, plus a thesis.

Plan B: Thirty-two credits. Twenty-nine credits in course work, plus an essay.

Plan C: Thirty-five to forty-eight credits in course work, plus written and/or oral comprehensive examinations in major (total credits determined by major area of study).

Admission: The department requires that the applicant have a 3.0 (B = 3) honor point average. A minimum of fifteen semester credits in the area of specialization is desirable.

Candidacy must be established by the time twelve semester credits have been earned.

Degree Requirements: All applicants for the master's degree are required to take SPB 700. The graduate program is to be worked out as early as possible with the student's major adviser.

Essays or theses may be written in any of the principal fields: communication and rhetorical processes; 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, the following courses are required: SPB 700; SPC 501 or 510, 516, 520, 521 or 620 and 625. At least three electives must be chosen from SPC 511, 517, 521, 611, 617, 619, 620, 624, 710, 712, 721, 726, 821, 826, and 897. At least one elective must be chosen from SPR 541, 553, 551, 758 and 759. At least one elective must be chosen from Marketing, subject to adviser's approval; electives from another department, such as Psychology, Sociology, English or Economics may be substituted for the Marketing course with adviser's prior approval.

For those specializing in mass communications, either SPR 751 or 759 must be included in the plan of work, as well as one additional radio-television-film course numbered above 700. At least two of the following are also required: SPR 551, SPR 553, SPR 555, SPR 557; and SPF 506. An emphasis in journalism at the graduate level is not currently available.

For those specializing in theatre, only plans A and B are acceptable for an M.A. Students will be required to enroll in at least two semesters of theatre history and two courses each in dramatic

literature and criticism. In consultation with adviser, students will choose other courses to fit their individual plans of work.

For those specializing in speech-language 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-Language-Hearing Association.

For those specializing in Communication Disorders and Sciences, every graduate student must elect the following: SPB 700; SPD 636, 702, 730, 736, 738, 760, 761, 762, 763, 764, 765, 766 and 767. A student who earns three C's will be terminated from the program upon recommendation of the CDS area faculty.

For those specializing in audiology, it is recommended that early contact be made with the Department of Audiology, School of Medicine, 5E, University Health Center, 4201 St. Antoine, for specific requirements.

Those specializing in speech communication education (pedagogy) must meet the admission, candidacy and degree requirements specified above for the M.A. degree and should elect SPC 501; SPE 606, 607 and 781; SPR 551 and SPT 507. Election of all coursework must be approved by the adviser.

Master of Fine Arts With Specialization in Theatre

The Master of Fine Arts degree in theatre is a two-year program of intensive professional training in the student's area of specialization and is offered in acting, directing or technical theatre.

Forty credits in graduate-level coursework are required for the M.F.A. in acting and directing; while the M.F.A. in design/technical theatre requires forty-eight credits. The M.F.A. in direction requires SPB 700. The detailed sequence of required and recommended courses may be obtained at the Theatre Office.

The final project 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. The student must submit a paper on dramatic literature performed in recital, including a critical analysis and explanation of the creative process leading to performance.
3. The student is examined on all work done on his/her M.F.A. program.

The final project 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/her responsibility for all aspects of production.
2. The student must submit a paper including a 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 examined on all work done on his/her program.

The final project in *design/technical production* will consist of:

710. Advanced Studies in Persuasion. Cr. 3
Prereq: SPC 521. Analysis and discussion of cognitive consistency theories, affiliation, achievement, and emotional balance theories; search for an eclectic theory of persuasion.

712. Studies in Contemporary Public Address. Cr. 3(Max. 6)
Prereq: SPC 210. Critical analysis of rhetoric and strategy of group efforts to bring about change over a period of time. Topics: political campaigns (offered in even-numbered years); social movements (odd-numbered years).

718. Speech, Language, and Social Relationships. (LIN 718). Cr. 3

Relation of speech and language patterns to social interaction. Ethnolinguistics, forms of address, social class perceptions, other topics.

719. Classical Rhetorical Theory. Cr. 3
Prereq: SPC 210 or 211 or classical civilization major. Critical analysis of the Sophists, Plato, Aristotle, Cicero, and others on rhetoric.

721. Communication Theory. Cr. 3
Prereq: SPC 521. Systematic analysis of major twentieth century theories of communication, with a discussion of their historical and philosophical foundations. Discussion and critical review of recent developments in communication theory.

725. Rhetorical Criticism. Cr. 3
Prereq: SPC 210 or consent of instructor. Principles of criticism as applied to public address; analysis of standards and methods of evaluation; readings in modern criticism of public address. Research project.

726. Behavioral Research Methods in Speech Communication I. Cr. 4

Material fee as indicated in *Schedule of Classes*. Methods of data collection and analysis in communication research, approaches to measurement, research design, and other quantitative methods of communication research.

729. Contemporary Rhetorical Theory. Cr. 3
Prereq: consent of instructor. Exploratory analysis of a broad spectrum of recent works relevant to the art of discourse.

812. History of American Public Address. Cr. 3
Topics to be announced in *Schedule of Classes*.

821. Advanced Studies in Communication. Cr. 3
Prereq: SPC 521. Selected topics in communication theory and research to be announced in *Schedule of Classes*.

822. Advanced Studies in Language and Communication. Cr. 3(Max. 12)
Prereq: consent of instructor. Topics to be announced in *Schedule of Classes*.

826. Behavioral Research Methods in Speech Communication II. Cr. 4
Prereq: written consent of instructor. Material fee as indicated in *Schedule of Classes*. Continuation of SPC 726.

829. Advanced Research Methods in Speech Communication. Cr. 3
Prereq: consent of instructor. Topics to be announced in *Schedule of Classes*.

897. Seminar in Communication, Rhetoric and Public Address. Cr. 2-3(Max. 9)
Prereq: consent of instructor.

Communication Disorders And Sciences (SPD)

508. Phonetics. (SED 532). Cr. 3
Multisensory study of sounds in the English language, emphasizing acoustic, physiologic, kinesio logic approaches.

509. Anatomy and Physiology of the Speech Mechanism. (SED 533). Cr. 3

Prereq: consent of instructor. General science of normal speech; anatomy, physiology and mechanics of respiration, phonation, resonance, articulation.

514. Introduction to Speech Science. (SED 507). Cr. 3
Prereq: SPD 508, 509. Overview of the basic processes of speech production; presentation of the principles of psychology, acoustics, phonetics, linguistics, semantics, and neurology involved in normal speech production.

530. Introduction to Speech Pathology. (SED 530). Cr. 3-4
Development of speech correction in education; classification, basic principles, methods of diagnosing and treating speech deficits; clinical observations required for majors only.

531. Clinical Methods in Speech Pathology. (SED 531). Cr. 3
Prereq: SPD 530 or consent of instructor. Procedures and materials for clinical diagnosis of articulatory, language, rhythm, and voice deficits of organic and non-organic causation.

532. Normal Language Acquisition and Usage. (SED 536). Cr. 3

Language development in children and the associated areas of emotional and motor development; language stimulation techniques and programs.

536. Clinical Practice in Speech Pathology. (SED 534). Cr. 2 (Max. 8)

Prereq: SPD 531, 532 and 660 and written consent of instructor. Supervised experience in application of methods of diagnosis and treatment of clinical cases.

608. Advanced Phonetics. (SED 633). Cr. 3
Prereq: SPD 508. Correlation of physiology to the production of speech and the acoustic characteristics of the sounds of English.

609. Electroacoustics of Speech. (SED 634). Cr. 3
Prereq: consent of instructor. Lecture-laboratory consideration of electroacoustics as applied to speech and audition.

632. Organization and Methods in Speech Pathology. (SED 632). Cr. 3

Prereq: consent of instructor. Class organization, management, material, teaching aids, techniques.

633. (SED 779) Language Bases of Learning Disabilities. Cr. 3
Prereq: open only to learning disabilities/emotional impairment majors; others by consent of instructor. Normal language acquisition and development and language pathology, including neurological process involved in speech reception and production, and assessment of language disorders as they relate to learning disabilities.

634. Speech Rehabilitation of the Laryngectomee. (SED 639). Cr. 3

Prereq: consent of instructor. Basic principles and practices for developing and improving the speech of the laryngectomee.

636. Advanced Clinical Practice in Speech Pathology. (SED 636). Cr. 2 (Max. 8)

Prereq: SPD 536, 660 and written consent of instructor. Supervised experience in application of methods of diagnosis and treatment of clinical cases.

638. Diagnostic Tests in Communication Disorders. (SED 638). Cr. 3

Prereq: junior standing; SPD 508, 509, 514, 530, 532. Diagnostic tests and instruments used in the appraisal of speech-language disorders. Test protocol and administration procedure.

660. Introduction to Articulation Disorders. (SED 660). Cr. 3

Prereq: SPD 530 or consent of instructor. Introduction to basic concepts related to acquisition and manifestations of articulation disorders in children and adults.

661. Introduction to Stuttering. (SED 661). Cr. 3

Prereq: SPD 530 or consent of instructor. Introduction to basic concepts related to acquisition and manifestations of stuttering disorders in children and adults.

662. Introduction to Voice Disorders and Cleft Palate. (SED 662). Cr. 3

Prereq: SPD 530 or consent of instructor. An introduction to basic concepts related to acquisition and manifestations of voice disorders in children and adults and to resonance disorders as a result of oral clefting.

663. Introduction to Neurological Speech and Language Disorders. (SED 663). Cr. 3

Prereq: SPD 509 and 530. Etiology, symptomology, and clinical treatment of neurologically-based speech and language disorders in children and adults.

664. Language Pathology: Etiology and Diagnosis. (SED 664). Cr. 3

Prereq: SPD 530 and 532. Descriptions, etiology, methods of diagnosis of language disorders in children.

680. Colloquium in Cultural Influences in Communicative Disorders. (TED 680). Cr. 1

Lectures on major cultures in the United States and their specific influences on the development and treatment of communicative disorders. Small group discussions pertaining to resolving clinical problems encountered when treatment procedures conflict with cultural demands.

702. Advanced Principles and Methods in Speech Science. (SED 732). Cr. 3

Prereq: SPD 514 or consent of instructor. Integration of the information from various disciplines involved in the production and measurement of speech and language.

730. Clinical Behavior Management in Speech/Language Pathology. (SED 736). Cr. 3

Therapy planning and problem-solving based on clinical models and viewing videotapes of ongoing therapy. Analysis of the clinical process from the standpoint of learning theory and behavior modification.

731. Clinical Supervision. Cr. 3

Prereq: consent of instructor. Overview of the process and application of clinical supervision.

734. Dynamic Analogies. (SED 734). Cr. 3

Prereq: written consent of instructor. Analogies between electrical, mechanical rectilinear, mechanical rotational and acoustical systems.

735. Advanced Anatomy and Physiology of the Speech Mechanism. (SED 735). Cr. 3

Prereq: SPD 509 and written consent of instructor. Material fee as indicated in *Schedule of Classes*. Consideration of current literature

and dissection.

736. Internship in Speech Pathology. (SED 730). Cr. 2 (Max. 8)

Prereq: written consent of instructor. Advanced professional experience in clinical speech pathology.

737. Special Research Projects in Communication Disorders and Sciences. (SED 737). Cr. 3

Prereq: consent of instructor. Research design and implementations; design and construct of research projects emphasizing student's preparation for conducting master's and doctoral research.

738. Diagnosis of Speech and Language Problems. (SED 731). Cr. 3 (Max. 9)

Prereq: consent of instructor. Clinical practice in diagnosis; handling referral to medical specialists; planning, training, treatment procedures.

760. Advanced Clinical Methods: Articulation. (SED 760). Cr. 3

Prereq: SPD 660. The etiology, diagnosis and advanced treatment regimens of articulation disorders in children and adults.

761. Advanced Clinical Methods: Stuttering. (SED 761). Cr. 3

Prereq: SPD 661, 730 or consent of instructor. The etiology, diagnosis and treatment of stuttering disorders in children and adults.

762. Advanced Clinical Methods: Voice Disorders. (SED 762). Cr. 3

Prereq: SPD 662 or consent of instructor. The etiology, diagnosis and treatment of voice disorders in children and adults.

763. Advanced Clinical Methods: Aphasia. (SED 763). Cr. 3

Prereq: SPD 663. Assessment and remediation principles designed for the adult aphasic.

764. Advanced Clinical Methods: Language Disorders. (SED 764). Cr. 3

Prereq: SPD 664. Linguistic, cognitive, pragmatic and perceptual considerations in assessment and remediation of childhood language disorders.

765. Advanced Clinical Methods: Cleft Palate Speech. (SED 765). Cr. 3

Prereq: SPD 662 or consent of instructor. The etiology, diagnosis and treatment of cleft palate disorders in children and adults.

766. Advanced Clinical Methods: Neuromuscular Disorders. (SED 766). Cr. 3

Prereq: SPD 663. The etiology, diagnosis and treatment of neuromuscular disorders in children and adults.

767. Counseling in Communication Disorders. (SED 768). Cr. 3

Prereq: graduate standing and consent of instructor. Principles of counseling appropriate to the student's work with families of/and the communicatively disordered. Video tapes, guest counselors, and supervised counseling experience.

809. Research in Speech Science. (SED 836). Cr. 3

Prereq: consent of instructor and adviser.

838. Seminar in Speech Science. (SED 838). Cr. 3 (Max. 12)

Prereq: written consent of instructor. No topic may be repeated for credit. I: vocal mechanisms; II: embryology; III: neuromuscular bases; IV: feedback mechanisms. Topics to be announced in *Schedule of Classes*.

839. Seminar in Speech and Language Pathology. (SED 837). Cr. 3(Max. 18)

Prereq: written 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*.

Speech Education (SPE)

606. Teaching Communication at the Secondary Level. (S E 606). Cr. 3

Prereq: fifteen credits in speech or consent of instructor. Philosophy, pedagogical issues, and methods for teaching speech in secondary schools.

607. Directing Forensics. Cr. 3

Prereq: SPC 211 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.

781. Seminar in Speech Education I. Cr. 3

Philosophy and approaches to teaching speech on the college level with particular emphasis on teaching SPB 200; or its equivalent. Special topics include objectives, evaluation, motivation and teaching strategies.

782. Student Teaching of Speech Communication on the College Level. Cr. 3

Prereq. or coreq: SPE 781 and consent of adviser. Offered for S and U grades only.

784. Seminar in Speech Education II. Cr. 3

Prereq: SPE 781. Continuation of SPE 781.

Film (SPF)

201. (ENG 245) Introduction to Film. Cr. 4

Material fee as indicated in *Schedule of Classes*. Examination of film techniques and basic methods of film analysis.

202. (ENG 246) History of Film. Cr. 4

Material fee as indicated in *Schedule of Classes*. Critical study of the motion picture as a modern visual art; screening and analysis of representative fiction films to illustrate important historical periods and genres.

502. Studies in Film History. Cr. 4(Max. 12)

Prereq: SPF 202. Material fee as indicated in *Schedule of Classes*. Analysis of the development of a specific film genre, a director, or other historical aspect of the motion picture. Topics to be announced in *Schedule of Classes*.

506. Documentary and Non-Fiction Film. Cr. 4

Prereq: SPF 202. Material fee as indicated in *Schedule of Classes*. Study of the non-fiction film made for a social, cultural, or political purpose; screening and analysis of selected films.

525. Screenwriting. Cr. 3 (Max. 9)

Prereq: SPR 221 and ENG 301. Principles and techniques of writing for motion pictures. Analysis and study of professionally-written scripts. Exercises in writing documentary and dramatic film scripts.

543. Film Production I. Cr. 4

Material fee as indicated in *Schedule of Classes*. Introduction to principles of cinematography (including cameras, lenses, film stock, pictorial composition, and lighting) and editing (including screen continuity and sound interlock); projects utilize Super 8mm and 16mm equipment.

544. Film Production II. Cr. 4

Prereq: SPF 543. Material fee as indicated in *Schedule of Classes*. Continuation of SPF 543. All aspects of sound motion picture production including emphasis on scripting, budgeting, shooting and direction, post-production, sound mixing and AB roll editing.

546. Motion Picture Animation Techniques. Cr. 3

Prereq: SPF 543. Material fee as indicated in *Schedule of Classes*. Theory and application of various forms and styles of film animation.

852. Seminar in Film. Cr. 3(Max. 9)

Prereq: consent of instructor. Topics vary with instructor. Consult area office.

Journalism (SPJ)

200. Contemporary American Press. Cr. 3

Survey of issues facing newspapers and magazines today.

210. News Reporting. Cr. 4

Prereq: ENG 301 with grade of C or better; sophomore standing; basic typing skills; written consent of department secretary. A grade of C or better in this course is prerequisite to additional journalism skills courses. Basic reporting: getting the facts and writing them well. Journalism skills course.

310. Public Affairs Reporting. Cr. 4

Prereq: SPJ 210 with a grade of C or better. Writing complex news stories. Coverage of legislative, judicial, and executive branches of government at city, county, state and federal levels. Journalism skills course.

321. News Editing. Cr. 4

Prereq: SPJ 210 with grade of C or better. Copy reading, grammar and usage for journalists, headlines, cutlines, proofreading. Libel and ethics, typography, layout, and design. Journalism skills course.

341. Radio and Television News Reporting. Cr. 4

Prereq: SPJ 210 with grade of C or better; must have access to cassette tape recorder. A grade of C or better is required to elect additional coursework in journalism. Techniques of preparing news for broadcasting; practical experience in the studio presentation of news. Journalism skills course.

400. Journalism Internship. Cr. 3 (Max. 6)

Prereq: completion of fifteen credits in journalism major sequence; senior standing. Open only to journalism majors. A grade of C or better is required for journalism major credit. Work assignments on daily or weekly newspapers, radio-television stations or public relations and advertising agencies. Journalism skills course.

445. Writing the Column, Editorial and Review. Cr. 4

Prereq: SPJ 210 with grade of C or better. The writing of newspaper opinion in its various forms.

446. Magazine and Feature Writing. Cr. 4

Prereq: SPJ 210 with grade of C or better, or consent of instructor. Preparation of feature material and non-fiction articles for

magazines and newspapers; the market for the free-lance writer. Journalism skills course.

448. Photojournalism. Cr. 4

Prereq: SPJ 210 with grade of C or better; access to 35mm camera. A grade of C or better is required to elect additional coursework in journalism. Theories and problems of news photography. Camera and darkroom techniques, news event coverage, picture stories and photo essays for newspapers and magazines. Students must have their own cameras and must develop and print their own photos. Journalism skills course.

490. Directed Study. Cr. 1-3 (Max. 4)

Prereq: SPJ 210; written consent of adviser and Mass Communications Area Head. Open only to journalism majors. Supervised individual research.

500. History of American Journalism. Cr. 3

Prereq: one course in American history. Development of the American press from colonial times to the present.

502. Law of the Press. Cr. 3

Prereq: junior standing. Libel, invasion of privacy, contempt of court, copyright, pornography and obscenity. Laws affecting newspapers and other mass media as businesses.

508. Mass Communications in a Foreign Culture. Cr. 1-3 (Max. 6)

Prereq: written consent of instructor. On-site study of communication at all levels in an overseas environment.

521. Newsletters and Corporate Publications. Cr. 3

Prereq: SPJ 321 with grade of C or better. A grade of C or better is required to elect additional coursework in journalism. Editing journalism newsletter; field trips to area magazines; editing internal publications. Journalism skills course.

530. Newspaper Publishing. Cr. 3

Prereq: SPJ 200, SPR 201; senior standing or consent of adviser. Principles and objectives of newspaper management; advertising, production, circulation, marketing, business and personnel departments. Local management executives serve as resource persons.

531. Investigative Reporting. Cr. 3

Prereq: SPJ 310 with grade of C or better. Advanced reporting techniques involving extensive use of public records and development of news sources. Journalism skills course.

601. Senior Seminar. Cr. 3

Prereq: senior standing; consent of adviser. Major media problems and policies; research projects; selected reading lists; meetings with editors and media personnel.

Audiology (SPM)

540. Introduction to Audiology. (AUD 540) (SED 540). Cr. 3

Prereq: consent of instructor. Introduction to physics of sound, anatomy of the hearing mechanism, audiometry, hearing aids, habilitation and rehabilitation of the hearing handicapped.

542. Speech Reading and Auditory Training. (AUD 542) (SED 551). Cr. 4

Prereq: SPM 540 or consent of instructor. Principles and methods of teaching speech reading and utilizing auditory training for the hard-of-hearing and deaf.

544. Practicum in Audiology. (AUD 544) (SED 541). (Lab: 6). Cr. 1

Prereq: SPM 540 and written consent of instructor. Supervised training and practice for clinical certification; not open for credit to graduate students in audiology.

548. Clinical Instruments. (AUD 548). Cr. 3

Prereq: graduate status in audiology or consent of instructor. Design, calibration, and use of electro- and bio-acoustic instruments in clinical audiology.

549. Acoustics, Sound and Noise. (AUD 549). Cr. 3

Prereq: SPM 548 or consent of instructor. Study of the generation, measurement, and control of sound and noise as related to problems in clinical and industrial audiology.

640. Anatomy and Physiology of the Auditory System. (AUD 640). Cr. 3

Prereq: graduate standing in audiology or consent of instructor. Functional anatomy, physiology, and neurology of the hearing mechanism.

641. Pure-Tone and Speech Audiometry. (AUD 641). Cr. 3

Prereq: graduate standing in audiology or consent of instructor. Fundamental principles and clinical applications of pure-tone and speech audiometry. Laboratory assignments required.

642. Advanced Auditory Tests. (AUD 642). Cr. 3

Prereq: SPM 641. Applications of pure-tone and speech audiometry to complex auditory problems. Use of physiological tests in the diagnostic process. Laboratory assignments required.

643. Hearing Aids. (AUD 643). Cr. 3

Prereq: SPM 641. Electroacoustic and clinical aspects of auditory amplifiers for the hearing handicapped.

644. Aural Rehabilitation. (AUD 644). Cr. 3

Prereq: six 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 deaf adults.

645. Clinical Topics in Audiology. (AUD 645). Cr. 1-2(Max. 8)

Prereq: written consent of department. In-depth study of special current topics in audiology. Topics to be announced in *Schedule of Classes*.

740. Research Projects in Audiology. (AUD 740). Cr. 3 (Max. 9)

Prereq: written consent of instructor. Materials fee assessed for projects using computer. Material fee as indicated in *Schedule of Classes*. Methods and procedures for experimental study of auditory function in the normal and hard-of-hearing; independent research projects.

741. Psychoacoustics. (AUD 741). Cr. 3

The behavioral response of organisms to sound. An in-depth study of classical and contemporary topics in psychological acoustics. Laboratory included.

742. Industrial and Community Problems in Audiology. (AUD 742). Cr. 3

Prereq: six graduate credits in audiology or consent of instructor. Hearing conservation programs in industry and in the community; discovery and prevention of hearing loss; auditory and non-auditory effects of noise on hearing; medico-legal problems.

743. Pediatric Audiology. (AUD 743). Cr. 2

Prereq: SPM 641 and consent of instructor. Introduction to embryology; tests and test procedures; counseling of parents with

hearing-impaired children.

745. Statistical and Experimental Procedures in Audiology I. (AUD 745). Cr. 4

Prereq: consent of instructor. Introduction to descriptive and inferential statistics and experimental designs as applied to auditory, psychophysical, and behavioral data. Non-parametric and correlational procedures.

746. Statistical and Experimental Procedures in Audiology II. (AUD 746). Cr. 4

Prereq: SPM 745. Continuation of SPM 745. Application of analysis of variance procedures to auditory, psychophysical, and behavioral data.

749. Educational Management of Hearing-Impaired Children. (AUD 749). Cr. 3

Prereq: SPM 643 and 743 or written consent of instructor. Pre-school guidance and counseling, modern educational models and placements options and the role of the audiologist in educational management.

840. Anatomy and Physiology of the Vestibular System. (AUD 840). Cr. 3

Prereq: consent of instructor. Functional anatomy, physiology, and neurology of the vestibular system.

841. Audiology I. (AUD 841). Cr. 3

Prereq: SPM 641, 642, and 643 or consent of instructor. Open only to post-master's students. Special procedures and applications of pure-tone and speech audiometry with emphasis on theoretical factors and research.

842. Audiology II. (AUD 842). Cr. 3

Prereq: SPM 841. Special procedures and applications of behavioral, physiological, and bioelectric audiometry with emphasis on theoretical factors and research.

843. Electronystagmography. (AUD 843). Cr. 2

Instrumentation, procedures, and interpretation of ENG recordings.

848. Seminar in Audiology. (AUD 848). Cr. 3(Max. 12)

Prereq: consent of instructor.

Oral Interpretation (SPO)

204. Voice and Articulation. Cr. 3

Laboratory for individual improvement in voice and articulation. Analysis of voice and articulation of each student followed by intensive exercise.

250. Beginning Oral Interpretation. Cr. 3

Oral performance approach to literature, fusing voice, body and meaning in the reading aloud of poetry, prose, drama; interaction of reader, listener, and literature.

350. Advanced Oral Interpretation. Cr. 3

Prereq: SPO 250 or equiv. Further development and application of oral performance techniques through consideration of theories of oral interpretation and literature.

505. Advanced Voice and Articulation. Cr. 3

Prereq: SPO 204 or equiv. Intensive individual vocal drill on the development of vocal quality, strengthening the breathing muscles, development of pitch range and inflection, projection, rate, and articulation as used in mass communication, theatre, public address, and oral interpretation. Second half of course devoted to voice qualities and dialects for performance. Emphasis on individual

attention.

550. Performance of Poetry. Cr. 3

Prereq: SPO 250 or equiv. Study of prosody systems and analysis and performance of forms of poetry, contemporary and traditional, including haiku, ballad, sonnet, dramatic poetry, and ode.

553. Interpretation of Prose Fiction. Cr. 3

Prereq: SPO 250 or equiv. Study and performance of scene, role and gesture as elements of point-of-view in the short story and novel.

554. Interpretation of Dramatic Literature. Cr. 3

Prereq: SPO 250 or equiv. Study and performance of dramatic literature from classical times to modern day.

555. Oral Reading Workshop. Cr. 1(Max. 3)

Prereq: SPO 250 or equiv. or consent of instructor. Workshop in conjunction with oral interpretation activities: festivals, contests, public performances such as Interpreter's Theatre productions and Readers' Bureau programs.

556. Performance of Classical Literature. Cr. 3(Max. 6)

Prereq: SPO 250 or equiv. I: Study of oral tradition; analysis and performance of classical Greek and Roman poetry in both lyric and dramatic modes. II: Analysis and performance of Shakespeare's plays. (I and II offered in alternate years).

558. Interpreter's Theatre. Cr. 3

Prereq: SPO 250 or consent of instructor. Theory and practice of theatres of oral interpretation: readers' theatre, chamber theatre, choral reading, and multiple reading. Directing experience and participation for beginning and advanced students in theatre of the mind.

559. Oral Interpretation of Special Types of Literature. Cr. 3

Prereq: SPO 250 or equiv. Analysis and performance of literature of minority groups and in translation with emphasis on cross-cultural communication.

656. Oral Interpretation Practicum. Cr. 2

Prereq: SPO 250 and consent of instructor. Oral interpretation in the social context. Sociological, psychological, educational and aesthetic considerations of program planning in the community using oral history and literature. Problems in audience analysis, collection and choice of materials, adaptation, rehearsal and presentation of materials.

750. Seminar in the Theories of Oral Interpretation. Cr. 3

Methods and techniques of oral interpretation relating to literary and performance theories.

752. Seminar in the History of Oral Interpretation. Cr. 3

The study of oral traditions from pre-Greek civilizations through the twentieth century.

898. Seminar in Oral Interpretation. Cr. 1-2(Max. 8)

Advanced research into special topics.

Radio And Television (SPR)

201. Survey of Mass Communications. Cr. 4

An introduction to the broadcast, print, and film media, with emphasis on origins, structure, functions, social implications and economic significance of the channels of communications.

211. Radio and Television Announcing. Cr. 3

Prereq: SPR 201. Theory and practice in broadcast media performance.

221. Writing for Radio-Television-Film. Cr. 3

Prereq: SPR 201. Application of writing principles to various forms of copy; continuity, commercials, public service announcements, features, documentary, drama.

267. Radio-Television-Film Laboratory. Cr. 1(Max. 4)

Prereq: written consent of instructor. Practical experience in workshop projects.

301. Mass Media Appreciation and Criticism. Cr. 4

Material fee as indicated in *Schedule of Classes*. Formal properties and aesthetic considerations in media, especially film and television.

311. Television Performance. Cr. 3

Prereq: SPR 211. Material fee as indicated in *Schedule of Classes*. Practical application of the principles and techniques of television performance.

354. Mass Media and the Black Community. Cr. 3(Max. 6)

Prereq: SPR 201 recommended. May be repeated only with consent of adviser. Analysis of broadcast programming, films and periodicals intended to serve the interests of minority audiences. Professional opportunities for minorities in media.

521. Advanced Radio-Television-Film Writing. Cr. 3(Max. 6)

Prereq: SPR 221. Principles and practice in creating the full-length dramatic or documentary script for broadcast or film production.

531. Radio Production. Cr. 4

Prereq: SPR 211. Material fee as indicated in *Schedule of Classes*. Theory and practice in broadcast production techniques and experimentation with creative audio production.

541. Television Production I. Cr. 4

Prereq: SPR 211. Material fee as indicated in *Schedule of Classes*. Theory and practical application of techniques used in television production; utilization of graphic materials, design and staging concepts, lighting techniques and studio operation; the role of the television producer-director.

542. Television Production II. Cr. 4

Prereq: SPR 541. Material fee as indicated in *Schedule of Classes*. Continuation of SPR 541. Emphasis on the organization and execution of the television studio director's tasks.

551. Mass Communications and Society. Cr. 3

Theoretical and practical research on the social functions and effects of the mass media.

553. Audience Measurement and Survey Techniques in Mass Media. Cr. 3

Prereq: SPR 201. Theory and application of quantitative research techniques in surveying audiences for media.

555. Broadcast Management. Cr. 3

Prereq: SPR 201. Principles of radio and television management; objectives, procedures and policies in radio and television station development and operation. Discussions with management executives. Market survey required.

557. International Communications. Cr. 3

Prereq: SPR 201. World mass communications systems, organizations and objectives. Political, economic and legal foundations of international media systems.

667. Individual Projects and Internships in Radio-Television-Film. Cr. 1-4(Max. 8)

Prereq: senior or graduate standing and written consent of instructor.

750. Seminar in Mass Communications. Cr. 3(Max. 9)

Prereq: consent of instructor. Topics vary according to instructor. Students should consult with area office.

751. Seminar in Mass Media Research. Cr. 3(Max. 9)

Topics vary according to instructor. Students should consult with area office.

755. Seminar in Broadcast Programming and Management. Cr. 4

Prereq: SPR 555. Selected current major problems in broadcast management; public issues and management responses; government regulation and other legal aspects of management; management use of market analyses and demographics in relation to program production and scheduling.

756. Seminar in Media Production. Cr. 3(Max. 6)

Research in individual problem areas of media production, including legal requirements, union involvement, the logistics of studio and location arrangements, or the roles of support agencies.

757. Seminar in Educational Utilization of Instructional Media and Mass Communication. Cr. 3

Organization of the communications media to serve learning principles and objectives; use of communications media in a variety of educational situations and in instructional media centers.

758. Content Analysis of Mass Communications. Cr. 3

Theory and practice in quantitative techniques for analyzing media content.

759. Criticism of Mass Media. Cr. 3

Theory and practice in the aesthetic analysis of media content and form.

770. Mass Media and Political Communication. Cr. 3

Mass media research methods for political communication studied and applied.

857. Seminar in Computer Assisted Instruction. (IT 714). Cr. 2

Prereq: consent of instructor. Application and evaluation of command languages, files and programs of computer based or controlled instructional languages to the communications media.

Theatre (SPT)

101. Introduction to the Theatre. Cr. 3

Historical, critical and cultural aspects of theatre and drama discussed relative to play attendance.

102. Structure and Analysis of the Drama. Cr. 3

Prereq: SPT 101. Reading and structural analysis of plays. Selected nineteenth and twentieth century plays.

103. Black Theatre: An Introduction. Cr. 3

Origins, development, and current trends with production techniques and problems related to the special area of the drama.

201. Stage Movement I. Cr. 2

Required of B.F.A. acting majors. Recommended for all first year acting students. Introduction to the principles, practices, and exercises in body technique and stage movement.

202. Stage Movement II. Cr. 2

Prereq: SPT 201 or consent of instructor. Required of B.F.A. acting majors. Recommended for all first year acting students. Continuation of SPT 201. Emphasis on character movement.

203. Introduction to Acting I. Cr. 3

Study and exercise in the fundamentals of the actor's craft. Emphasis on the development of the actor's inner resources as applied to dramatic action, and consideration of basic stage techniques.

204. Introduction to Acting II. Cr. 3

Prereq: SPT 203 or consent of instructor. Further development of the techniques covered in SPT 203 and basic principles of character building. Emphasis on the development of a role through script, exercises and scene work.

205. Problems in Performing Afro-American Drama I. Cr. 3

Fundamentals of the actor's craft; movement and pantomime to develop basic technique; work relating traditional technique to black theatre.

206. Problems in Performing Afro-American Drama II. Cr. 3

Prereq: SPT 205 or consent of instructor. Basic principles of character building and practice through exercises and scenes. Analysis of drama for character clues; utilization of body and voice in creating character; emphasis on voice and articulation.

207. Theatre Criticism and Appreciation. Cr. 3

Credit only for non-theatre majors. Methods and means of play production. Appreciation of acting and theatrical art. Types of plays, styles of production, theatrical criticism. Attendance at certain theatre performances required.

208. Theatre Laboratory. Cr. 1-4 (Max. 8, B.F.A. technical students; max. 3, B.A. students)

Supervised laboratory practice in all phases of technical theatre.

209. Stage Combatives - Elementary. Cr. 1

Prereq: consent of instructor; good physical condition. Introduction to theory and practice of elementary special combat skills for the theatre.

210. Introduction to Mime. Cr. 1

Introduction to theory and practice of ancient and modern mime and pantomime.

211. Voice Laboratory I. Cr. 2

A concentrated study of the voice techniques an actor needs: breathing, articulation, range and initial exploration of the reading and performing of poetic drama.

212. Black Theatre: Make-Up for the Black Actor. Cr. 2

Lecture-demonstration and practical application by the students of various techniques of stage make-up relating specifically to the problems of the black actor and actress.

213. Stagecraft. Cr. 3

Prereq: SPT 101 recommended. Principles of scenic construction and painting. Types and utilization of stage scenery. Laboratory projects coordinated with University Theatre productions.

214. University Theatre Practicum. Cr. 1-2(Max. 11)

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.

215. Advanced Stage Combat. Cr. 1

Prereq: PEA 171 or SPT 209 or any stage combat course; adequate physical condition. Advanced instruction and experience in a variety of combat techniques and weapons designed for theatrical use.

216. Technical Theatre Problems. Cr. 2(Max. 18)

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.

286. (MUA 286) Opera Workshop. Cr. 1 (Max. 8)

Prereq: consent of Director and undergraduate theatre adviser.

301. Acting Styles I. Cr. 3

Prereq: SPT 204 or consent of instructor. Required of all B.F.A. acting majors. An introduction to the theories and methods of acting verse drama. Emphasis on Shakespeare.

302. Stage Movement III. Cr. 2

Prereq: SPT 202 or consent of instructor. Required of B.F.A. acting majors. Styles of stage movement: Commedia, Moliere, Restoration. Emphasis on period deportment, manners, and dance forms.

303. Acting Styles II. Cr. 3

Prereq: SPT 301. Required of all B.F.A. acting majors. A continuing study of theory and methods of acting classic and modern styles of comedy. Major emphasis on the American musical theatre.

304. Stage Movement IV. Cr. 2

Prereq: SPT 302 or consent of instructor. Required of B.F.A. acting majors. Styles of stage movement: Shakespeare. Emphasis on Renaissance deportment, manners, and dance forms.

305. Principles of Makeup. Cr. 2

Fundamentals of theatre makeup. Laboratory projects coordinated with University Theatre productions.

306. Stage Lighting. Cr. 3

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.

307. WSU Movin' Theatre Repertory Program.

Cr. 1-2(Max. 4)

Admission by audition only.

308. Voice Laboratory II. Cr. 2

Continuation of SPT 211 with an emphasis on performance and the study of dialects.

320. Introduction to Contemporary Latin American Theatre. (CBS 341). Cr. 3

Historical study of contemporary theatre movement in Latin America; playwrights, theorists, directors, theatrical groups.

401. Advanced Acting I. Cr. 3

Prereq: SPT 303 or consent of instructor. Required of all B.F.A. acting majors. Studies and practice in audition techniques; the particular and individual acting problems of the class.

402. Stage Movement V. Cr. 2

Prereq: SPT 304 or consent of instructor. Introduction to musical comedy theatre dance. Emphasis on performance techniques and styles of musical comedy theatre dance: tap and jazz.

403. Advanced Acting II. Cr. 3

Prereq: SPT 401 or consent of instructor. Required of all B.F.A. acting majors. Personalization: theory and practice of techniques by which actors invest their interpretative work with their own creative vision. Scene work selected from the modern realistic theatre.

501. Theatre Costuming I. Cr. 3

Prereq: SPT 101 recommended. Introduction to costume design and construction. Laboratory projects coordinated with University Theatre productions.

502. Theatre Costuming II. Cr. 3

Prereq: SPT 501 or consent of instructor. Advanced costume design projects concentrating on the expression of character through design principles. Further development of drawing and rendering skills.

503. Introduction to Design for the Theatre. Cr. 3

Prereq: SPT 213 recommended. Methods and materials laboratory course. Practical exercises. Prerequisite to stage, costume or lighting design; techniques of costume, lighting design; rendering, drafting, perspective, color, and design.

504. Repertory Theatre. Cr. 1-4 (Max. 6)

Prereq: consent of University Theatre director. Supervised experience in the Hilberry Theatre.

505. Play Direction I. Cr. 3

Prereq: SPT 306 or consent of instructor. Principles and theories of stage movement, blocking, casting, rehearsing. Students required to direct scenes and one-act plays for class presentation.

506. Play Direction II. Cr. 3

Prereq: SPT 505 or consent of instructor. Continuation of SPT 505. Lectures on the history of play direction. Students required to direct a full-length play on the University Student Stage.

507. Play Production for School and Community. Cr. 3

Not open to theatre majors. Directing plays for school and community theatres. Organization of dramatic groups, tryouts, casting, problems of directing, motivation of action and speech, inventing stage business, production coordination and technical survey.

508. Stage Design. Cr. 3 (Max. 6)

Prereq: SPT 503 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.

509. Advanced Stage Design. Cr. 3 (Max. 6)

Prereq: SPT 508 or consent of instructor after examination of student's scenic designs. Laboratory theory course in stylistic characteristics of modern stage designs. Advanced problems in scenic design.

510. Theatre History I. Cr. 4

The development of the physical theatre and the evolution of production methods in Greek, Medieval, Renaissance, and English Restoration theatres with the correlation of the cultural environment of each period.

511. Black Theatre: Literature and Criticism. Cr. 2

Prereq: SPT 103 recommended. Plays by black American playwrights; examination of essays by black critics; existing black theatre in America; the aesthetics of twentieth-century black drama.

512. Development of the Drama I: Greek to Eighteenth Century. Cr. 4

Plays from the Greek through the eighteenth century, including Shakespeare; relation of drama to an era and its theatre.

513. (ENG 589) Writing for Theatre, Film, and Television. Cr. 3 (Max. 6)

Prereq: ENG 283 or consent of instructor. Comparative study of scripts for stage, radio, television plays, and motion pictures. 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 the Department of Speech Communication, Theatre and Journalism.

514. Introduction to Scene Painting. Cr. 3

Prereq: SPT 213 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 the beginning work from painter's elevations.

515. Advanced Scene Painting. Cr. 3

Prereq: SPT 514 and consent of instructor. Laboratory and demonstration course for the design or technical theatre student. Materials, techniques, styles of scene painting.

516. Techniques of Musical Comedy. Cr. 2

Analysis of musical comedy styles and techniques; exploration of key directorial and choreographic issues; performance projects emphasizing movement and composition. Offered in summer only.

517. Modern Acting Styles and Theories. Cr. 3

Prereq: three undergraduate courses in acting or equivalent experience and consent of instructor. Advanced lecture and performance course to develop the process of analysis, creation, and performance of dramatic characters as required by today's film, television and theatre disciplines.

518. Advanced Musical Comedy. Cr. 2

Musical comedy theatre dance; advanced performance techniques and styles of musical comedy theatre dance: tap and jazz.

601. Studio I. Cr. 3

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 historic period as it relates to the arts of the actor and director. Correlative performance projects. Subject matter coordinated with the repertory of the Hilberry Theatre.

602. Studio II. Cr. 3

Prereq: SPT 601. 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 SPT 601.

603. Creative Dramatics for Children. Cr. 3

Creative dramatics and formal playmaking for and by children.

604. Children's Theatre Play Production. Cr. 3

Prereq: SPT 507 or 603 recommended. Theory and practice of organization, selection, direction, production of plays for children's audiences in schools, churches and communities.

605. Problems in Theatre Organization and Management. Cr. 3

Prereq: ten to twelve credits in theatre courses. Theatre curriculum, management, organization, exploitation, financing, and other phases of university, community, and high school theatre. Laboratory experience in the University Theatres.

606. Costume Design for the Theatre. Cr. 3 (Max. 6)

Prereq: consent of instructor. Advanced phases of costume design and construction. Source material for historical and national costumes.

607. Advanced Stage Lighting Design. Cr. 3 (Max. 6)

Prereq: SPT 306 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.

608. Advanced Stage and Film Makeup. Cr. 2

Prereq: SPT 305 or consent of instructor. Continuation of basic principles applied in SPT 305 with accent on new makeup materials; experimentation with prothesis and design for problem makeup.

610. Classical Acting Styles and Theories. Cr. 3

Prereq: three undergraduate acting courses or equivalent experience or consent of instructor. A lecture and performance course at an advanced level to develop the actor's process of analyzing, creating, and performing characters from the classical drama for today's film, television and theatrical media.

701. Development of the Drama II: Nineteenth Century to Modern. Cr. 4

Plays and theories of the theatre from the nineteenth century to modern times; relation of drama to an era and its theatre.

702. Trends in the Modern Theatre. Cr. 3

Expressionism, Epic Theatre, Theatre of Cruelty and other movements since World War I. Relation of dramatic theory to theatrical practice.

703. Advanced Technical Theatre Problems. Cr. 2(Max. 8)

Prereq: consent of instructor. Advanced study and research in scenic design, theatre architecture, stagecraft, lighting. Projects and reports.

704. 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.

705. Studio III. Cr. 3

Prereq: SPT 602. 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 SPT 602.

706. Studio IV. Cr. 3

Prereq: SPT 705. 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 SPT 705.

707. Advanced Repertory Theatre. Cr. 1-4(Max. 6)

Prereq: consent of Director of University Theatre. Continuation of SPT 504. Supervised experience in the Classic Theatre repertory program.

708. Advanced Theatre Laboratory. Cr. 1-3(Max. 3; max. 9 for M.F.A. students with consent of instructor)

Prereq: consent of instructor. Supervised laboratory practice in technical theatre and theatre management.

710. Theatre History II. Cr. 4

Prereq: SPT 510 or consent of instructor. Continuation of SPT 510. From English and continental eighteenth century to contemporary European and American theatres.

786. (MUA 786) Opera Workshop. Cr. 1 (Max. 8)

Prereq: consent of Director and graduate adviser.

801. Advanced Theatre Practicum. Cr. 1-2(Max. 11)

Prereq: consent of theatre staff. Public performances in the dramatic productions of the University's Bonstelle, Studio and Children's Theatres. Credit determined by complexity of dramatic role performed.

802. Seminar in Theatre. Cr. 1-3(Max. 6)

Prereq: SPT 704, 710 or consent of instructor.

STATISTICS

COURSES OF INSTRUCTION¹ (STA)

102. Elementary Statistics. Cr. 3

Prereq: one and one-half years high school algebra. Not to be counted as a mathematics course by mathematics majors. Descriptive statistics, correlation and regression, notions in probability, binomial and normal distributions, testing hypothesis.

In addition to the interdepartmental course described above, several specialized advanced courses are offered by individual departments:

- ECO 410 — Economics and Business Statistics I
- ECO 510 — Economics and Business Statistics II
- ECO 610 — Introduction to Econometrics
- ECO 710 — Econometrics I
- ECO 711 — Econometrics II
- ECO 810 — Advanced Econometrics
- ECO 811 — Applied Econometrics
- MAT 221 — Introduction to Probability and Statistics
- MAT 502 — Probability and Stochastic Processes
- MAT 570 — Probability and Stochastic Processes
- MAT 571 — Applied Stochastic Processes
- MAT 582 — Statistics I
- MAT 770 — Advanced Probability Theory I
- MAT 771 — Advanced Probability Theory II
- MAT 780 — Statistics II
- MAT 787 — Topics in Statistics
- MAT 880 — Advanced Topics in Statistics
- PSY 410 — Statistical Methods in Psychology
- SOC 525 — Social Statistics
- SOC 625 — Analysis of Multivariate Data
- SOC 626 — Advanced Multivariate Analysis and Model Construction
- SOC 821 — Seminar in Methods of Social Research and Statistics

For descriptions 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.

Minor in Mathematics: To fulfill a minor in mathematics, a student must complete satisfactorily the following requirements:

- (1) MAT 201, 202, 203, and 204 — The Basic Sequence;
- (2) MAT 507 — Advanced Calculus;
- (3) Two additional courses numbered 500 or above, applicable to degree work in mathematics. Mathematics services courses may not be used to satisfy this requirement.

Any student interested in a minor in mathematics should consult with an adviser in the mathematics department.

¹ See page 633 for interpretation of numbering system, signs and abbreviations

URBAN PLANNING

Office: 428 Library Court

Chairperson: George Honzatko

Professors

George Honzatko, Mel Ravitz

Associate Professors

Eugene Perle, Gary Sands

Adjunct Faculty

Harold Bellamy, Wesley Gould, Lawrence Greene, John Mattila, John Musial, Robert Sinclair, Sue Smock, Jorge Tapia-Videla, Bryan Thompson, Wilbur Thompson, Eleanor Wolf, L. 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 School, and offers graduate courses leading to the degree Master of Urban Planning. 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 School, 102 Administrative Services Building.

Degree Requirements: Specific requirements for the degree will be determined in the case of each applicant after the completion of approximately twelve 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 stipulated by the American Planning Association will be required for the degree. Prior completion of courses equivalent to the requirements will form the only basis for reducing credits in any individual program. The department anticipates that academic work will begin with courses at the 500 or 600 level. At present there are several core areas in which applicants must take courses: planning background and processes, urban structure and analysis, and planning implementation. All *Plans of Work* will include at least twelve credits of course work at the 700 or 800 levels, excluding the essay or thesis.

COURSES OF INSTRUCTION¹ (U P)

510. Field Studies on Urban Problems. (US 604). Cr. 3
Prereq: U S 401. No credit for urban planning majors; no graduate credit. Field research on selected urban problems. Preparation of applied research report based on agency data, interviews with public officials, and analyses of public documents.

511. Urban Planning Process. Cr. 4
Scope and historical development of planning. Topics relevant to the practice of planning: theory, planning practice, social and physical development policy.

515. (P S 522) Issues in Urban Public Policy. Cr. 4
Prereq: P S 224. No graduate credit in political science. Examination of influences on urban policy formation and implementation. Problems of service distribution, policy impacts and policy evaluation in urban areas. Review of specific policies and programs.

521. (SOC 550) Urban and Metropolitan Living. Cr. 3
Examination of the development and organization of urban living as it emerged from village to city to metropolitan region. Topics include: causes of urbanization and its consequences for the ecological and social structure of the city, intergroup relations, crime and poverty in the city.

525. (P S 525) Urban Management. Cr. 4
Prereq: P S 224 and P S 231 or consent of instructor. No graduate credit in political science. Public administration in urban settings with focus on: program development-implementation, emphasizing community and economic development; public facilities planning; land use controls and management of growth or decline; and project, program and public services.

532. (GEG 617) Physical Bases of Urban Ecology. Cr. 3
Morphology, geology, climatology, pollution, hydrology, soil and vegetation of urbanized areas; use in planning.

542. (GEG 615) Internal Structure of the City. Cr. 4
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.

551. Principles of Urban Economic Development. Cr. 3
Survey of the theories and concepts of economic development for cities and metropolitan areas.

552. (GEG 624) Industrial Geography. Cr. 4
Theory and practice of the location of industry, analysis of selected manufacturing industries and selected industrial regions. The role of industrial location in urban and regional development.

562. (GEG 628) Marketing Geography. Cr. 4
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 of urban land use.

582. (ECO 580) Urban and Regional Economics I. Cr. 3
Prereq: ECO 101 and ECO 102 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.

¹ See page 633 for interpretation of numbering system, signs and abbreviations

592. (ECO 581) Urban and Regional Economics II. Cr. 3

Prereq: ECO 580. Seminar in selected topics in regional economic development, urban problems and public policy.

601. (GEG 613) Advanced Urban Geography. Cr. 4

Selected themes in urban geography: current theoretical developments, city systems in advanced societies, the evolution of urban patterns, recent regional shifts in American urbanization, the metropolis as a social unit.

605. Legal Aspects of Planning. Cr. 3

Status of legal issues concerning urban planning activity and implementation. Implications for planning practice, scope of police powers, intergovernmental relations and plan authority.

610. Studies in Urban Planning. Cr. 3-4

Prereq: consent of instructor. Individual problems in urban planning.

611. Physical Planning Concepts. Cr. 2-3

Prereq: consent of instructor. Physical aspects of urban planning as an expression of physical function, social order and cultural background.

612. Planning Studies and Methods. Cr. 4

Prereq: consent of instructor. Economic base, population, and land use studies. Discussion of approaches used to solve selected community development problems.

615. Community Development Programs. Cr. 3

Urban renewal in comprehensive planning. Topics include the workable program, community renewal program, and area redevelopment.

620. (P S 593) Public Use Data and Information Systems. (GEG 593) (SOC 593). Cr. 4

Data and information systems useful in social science; emphasis on federal sources, including decennial and special censuses. Applications in specific disciplines. Familiarization with standard routines for computer retrieval/analysis; geocoding, and indicator construction.

621. Urban Design Elements. Cr. 3

Introduction to the role of urban design and the concept of design criteria, design variables, and terminology.

622. Environmental Impact Analysis. Cr. 3

Development of environmental impact statements. The techniques and approaches used to evaluate the impact of development.

625. (SOC 656) Urban Change and Social Planning. Cr. 3

Theories of social change; possibilities and limitations of social planning. Social techniques aimed at promoting or resisting planned social change. Field trips in Detroit industry, government planning departments.

631. Housing Development. Cr. 4

Physical, social, and economic aspects of housing. Topics include new construction as well as the rehabilitation of existing housing stock.

632. Quantitative Techniques I. Cr. 4

Statistical inference with emphasis on applications including control tendency, dispersion, hypothesis testing, correlation and regression.

641. Professional Aspects of Urban Planning. Cr. 2-3

Readings on the profession of urban planning. The role and responsibilities of the planner in professional practice. Interagency relationships and their affect on the activities of the practicing planner.

642. Sample Surveys. Cr. 2-3

Fundamental issues concerning surveys and sampling, aspects of sample design, bias, and attitude surveys.

645. (SOC 655) Dynamics of Urban Social Action. Cr. 3

Exploration of the nature and forms of social action. Practical examples of organization and planning considered along with the uses of power, non-violence, violence and the relationships of these actions to social change.

651. Regional Development. Cr. 4

Regional planning and development concepts. Influences of transportation, resources, economic activity, and urban spatial agglomerations on regional growth.

652. Transportation and Planning. Cr. 4

Introduction to the role of transportation in the planning process involving both regional and urban considerations.

655. Social Policy Planning. Cr. 2-3

Scope of social planning in urban areas and its relation to the total development process of communities.

662. (CSC 501) Computers and Research. Cr. 3

Prereq: placement out of MAT 095. No credit after any other programming course; no credit for computer science minors or majors. Material fee as indicated in *Schedule of Classes*. Introduction to computing, data processing, and computer utilization for research; computer languages, library programs and their use; job control languages.

665. Land Use Controls. Cr. 2-3

Techniques available to guide land development. Concepts in zoning, subdivision regulations, timing and sequence of land development.

672. Planning Analysis. Cr. 4

Social and physical composition of urban areas. Studies of land use, demographic trends and industrial location as they affect land planning.

675. (ECO 552) State and Local Finance. Cr. 3

Prereq: ECO 102 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.

701. Planning and Decision Theory. Cr. 3

Prereq: consent of instructor. Materials addressing the function of planning as a rationalizing of social decision making processes. Theories of the planning process as a human decision activity.

702. Community Planning Workshop. Cr. 4

Prereq: U P 612. 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.

712. Regional Studies Workshop. Cr. 2-4

Prereq: U P 612 or consent of instructor. Application of selected methods in the study of community growth and development. Studies of comparative and unique situations.

715. Financial Aspects of Urban Planning. Cr. 4

Costs and revenues of urban development in relation to land uses. Study of financial impact evaluations and methods of financial analysis.

722. Housing Analysis. Cr. 3

Prereq: consent of instructor. Quantitative techniques for the analysis of housing markets and housing developments.

725. Growth Management. Cr. 2-3

Review of existing efforts by communities to guide development. A systematic and comparative analysis of selected growth management programs from the viewpoint of their regional and environmental impacts.

735. (P S 725) Seminar in Urban Administration. Cr. 3

Public administration in agencies with urban-related policy and program functions. Public services delivery; urban systems development; program-project design, implementation and evaluation; and intergovernmental relations: metropolitan cooperation and coordination.

742. Seminar in Land Use Planning. Cr. 3

Prereq: consent of instructor. Analysis of development plans for new and existing communities; selected topics.

745. (P S 726) Conflict and Cooperation in Intergovernmental Relations. Cr. 3

State and federal policy impacts, revenue sharing and other forms of intergovernmental assistance, relations among local governments and development of metropolitan institutions will be analyzed.

755. (P S 730) Public Administration in the United States. Cr. 3

Examination of the development of public bureaucracy in the United States and the political, legal and social forces shaping it. Emergence and evolution of public administration as both a profession and a field of study. Major normative concerns underlying public administration theory and practice. The role of public bureaucracies in the policy-making process and efforts to achieve an effective and accountable public bureaucracy.

760. Seminar. Cr. 2-3(Max. 6)

Prereq: consent of instructor. Study and discussion of selected aspects of urban planning. Topics to be announced in *Schedule of Classes*.

765. (P S 724) Urban Public Policy. Cr. 3

Influences on urban policy makers, policy making and implementation, service distribution and policy impacts. Applications to substantive policy areas.

770. Projects in Urban Planning. Cr. 1-3(Max. 6)

Prereq: consent of instructor. Development and application of research design to specified urban problems.

780. Planning Internship. Cr. 2(Max. 4)

Prereq: written consent of instructor. Offered for S and U grades only. Supervised field experience with public or private planning agency.

790. Directed Study. Cr. 2-4(Max. 6)

Prereq: written consent of adviser and graduate officer. Independent reading and research.

796. Research Topics. Cr. 2-4(Max. 6)

Prereq: consent of instructor. Individual problems in urban planning.

799. Master's Essay Direction. Cr. 3

Prereq: consent of adviser.

801. (SOC 850) Seminar in Urban and Metropolitan Sociology. Cr. 3

822. Quantitative Techniques II. Cr. 4

Prereq: consent of instructor. Multivariate analysis with emphasis on applications, including matrix algebra, vector spaces, linear and non-linear models, principal components analysis, and programming approaches.

899. Master's Thesis Research and Direction. Cr. 2-8(8 req.)

Prereq: consent of adviser.



URBAN STUDIES

Office: 848 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 enough to serve a wide variety of student needs and interests. 'Urban' includes 'suburban'; 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 the *Declaration of Major* form has been completed at the beginning of the junior year and has been authorized for an approved major, the student may then use the same form to apply for acceptance into the co-major program.

Requirements: Three core courses and twenty-two credits of urban-related elective courses, of which at least six 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 (10 credits)

	<i>credits</i>
U S 200 — Introduction to Urban Studies.....	4
U S 401 — Interdisciplinary Pro-Seminar.....	3

One of the following:

U S 600 — Field Studies.....	3
U S 601 — Supervised Field Experience.....	3
U S 602 — Political Science Internship.....	4
U S 603 — Field Geography.....	3-7
U S 604 — Field Studies on Urban Problems.....	3
U S 605 — Independent Field Study.....	2-4

Electives

The University offers a large number of urban-related courses suitable as electives. The following list is not exhaustive:

ANT 506 — Urban Anthropology.....	3
ANT 534 — Arabic-Speaking Communities in the Detroit Area.....	3
ANT 570 — Applied Anthropology.....	3
ANT 669 — Topics in Urban Anthropology.....	3
A H 205 — Western Architecture.....	3
A H 378 — Modern Architecture.....	3
A H 676 — Social History and Art in America: 1619-1887.....	3
A H 677 — Social History and Art in America: 1888-1980.....	3
BRO 100 — Introduction to Life.....	4
BIO 103 — Man and the Environment.....	3
BIO 120 — Microbes and Human Affairs.....	2
BIO 240 — Plants and Human Affairs.....	2
BIO 385 — Human Heredity.....	3
CLA 325 — Urban Study of Ancient Rome.....	4
ECO 552 — State and Local Finance.....	3
ECO 580 — Urban and Regional Economics I.....	3
ECO 581 — Urban and Regional Economics II.....	3
ENG 255 — Literature, Language and Labor.....	3
ENG 542 — American Realism: 1865-1914.....	3
ENG 548 — Topics in Afro-American Literature (either Harlem Renaissance or Contemporary Black Writers).....	3

ENG 549 — Topics in American Literature.....	3
ENG 555 — Topics in the Novel.....	3
ENG 567 — Topics in Folklore and Folklife (either Folklore of the Working Class or Urban Folklore).....	3
FAC 186 — Survey of Early Child Care.....	3
FAC 187 — Survey of Gerontological Care Situations.....	3
FAC 355 — The Consumer and the Market.....	3
FAC 356 — Introduction to Consumer Housing.....	3
FAC 555 — Trends in Consumer Affairs.....	3
FAC 656 — Urban Family Housing.....	3
GEG 313 — Introductory Urban Geography.....	4
GEG 565 — Regions of Detroit.....	4
GEG 613 — Advanced Urban Geography.....	4
GEG 615 — Internal Structure of the City.....	4
GEG 616 — Comparative Urban Systems.....	3
GEG 617 — Physical Bases of Urban Ecology.....	3
GEG 623 — Land & Leisure: Studies in Recreational Geography.....	3
GEG 624 — Industrial Geography.....	4
GEG 628 — Marketing Geography.....	4
GEG 635 — Ethnic Groups in the United States.....	4
HIS 514 — Professions in Urban & Suburban America.....	3
HIS 515 — American Urban History in Comparative Perspective.....	3
HIS 579 — Cities and Empires.....	3
HIS 580 — Cities of Advanced Industrial Countries & Developing World.....	3
N E 503 — Great Cities of the Near East.....	3
P S 224 — Introduction to Urban Politics and Policy.....	4
P S 225 — Comparative Urban Politics.....	4
P S 311 — Politics and Local Justice.....	4
P S 429 — Field Research in Urban Politics.....	4
P S 525 — Urban Management.....	4
P S 527 — Local Government in Canada.....	4
PSY 260 — Psychology of Social Behavior.....	4
PSY 261 — Laboratory in Personality and Social Psychology.....	3
PSY 467 — Environmental Psychology.....	3
PSY 563 — Group Dynamics.....	3
PSY 464 — Attitudes and Interpersonal Attraction.....	3
PSY 465 — Psychological Aspects of Leadership.....	3
SOC 202 — Social Problems.....	3
SOC 351 — The Nature and Impact of Population on Society.....	3
SOC 382 — Criminology: Society, Crime & the Criminal.....	3
SOC 458 — Ethnic Groups in Urban America.....	3
SOC 530 — Bureaucracy in Contemporary Society.....	3
SOC 550 — Urban and Metropolitan Living.....	3
SOC 555 — Social Movements and Collective Behavior.....	3
SOC 557 — Race Relations in Urban Society.....	3
SOC 562 — Social Aspects in Industry.....	3
SOC 563 — American Labor: Blue Collar, White Collar.....	3
SOC 581 — Law in Human Society.....	3
SOC 655 — Dynamics of Urban Social Action.....	3
SOC 656 — Urban Change and Social Planning.....	3
SOC 663 — Sociology of Work and Occupations.....	3
U P 511 — Urban Planning Process.....	4
U P 605 — Legal Aspects of Planning.....	3
U P 631 — Housing Development.....	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 INSTRUCTION¹ (U S)

200. Introduction to Urban Studies. (ECO 280) (GEG 200) (HIS 200) (P S 200) (SOC 250). 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.

401. Interdisciplinary Pro-Seminar. Cr. 3

Prereq: U S 200. Undergraduate credit only. Topics to be announced in *Schedule of Classes*.

600. (CRJ 600) Field Studies. Cr. 1-8(Max. 8)

Prereq: U S 401. Undergraduate credit only. Comprehensive internship program involving various criminal justice agencies. Placement may be made in court, corrections, police, juvenile justice, and other agencies at the state, county and local levels; opportunities include agency procedure and policy, patrol, case analysis, report writing and research.

601. Supervised Field Experience. Cr. 3

Prereq: U S 401 and written consent of instructor. Undergraduate credit only. Field experience correlating theory with practical work. Meets with FAC 592.

602. (P S 591) Political Science Internship. Cr. 1-4(Max. 6)

Prereq: consent of undergraduate adviser. Open only to political science majors or minors, urban studies co-majors, or students with twelve credits or more in political science. Internship in a public or quasi-public organization, agency, civic or voluntary group, or campaign organization. Collateral reading, written work, arranged conferences with faculty supervisor.

603. (GEG 650) Field Geography. Cr. 3-7

Prereq: U S 401 and two courses in geography or consent of instructor. Geographic field training, including mapping, interviewing, field observation, data gathering, problem analysis, and report preparation. Work undertaken in a variety of situations, including urban and rural land use, industrial and commercial locations, urban social change, agriculture, soils and landforms. Normally held in summer.

604. (U P 510) Field Studies on Urban Problems. Cr. 3

Prereq: U S 401. No graduate credit. No credit for urban planning majors. Field research on selected urban problems. Preparation of applied research report based on agency related data, interviews with public officials and analyses of public documents and related studies.

605. (GEG 652) Independent Field Study. Cr. 2-4(Max. 4)

Prereq: U S 401 and consent of instructor. Observation and interpretation of data in the field. Class sessions preparatory to travel. Written reports.

WOMEN'S STUDIES

Office: 431 State Hall

Director: Marilyn L. Williamson

Advisers: Helen Jankowska, Mary Schwanky

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: (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 the contemporary environment and their place in it; (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.

Program Requirements consist of thirty-two credits including three core courses and twenty-four credits in elective courses. The core courses are as follows:

English 291, Women's Studies I: Women's Lives, Cr. 3 (Max. 6): an analysis of biographical materials, past and present, reflecting ordinary women's lives as shaped by their environment, how they have reacted creatively with it, how they have confronted problems, and how their values, aspirations, and even failures can inform the lives of students today. Students may elect the course to a maximum of six credits, three of which fulfill the core requirement and three of which may be applied to group (1) of the elective portion of the co-major.

Sociology 446, Women in Society, Cr. 3: in-depth investigation of living and working conditions of women in the world today, with emphasis on the importance of socio-economic changes.

An independent study, Cr. 4, is required, to be arranged with an instructor in the student's major field during the senior year. The student should devise and complete a project using the materials and methods of the major field to address a topic in women's studies. Usually, but not always, a paper or report will result from the project. All arrangements for this course are made by the student, who is also responsible for notifying the Coordinator as to the subject of the project.

The elective courses must be chosen from the list of approved courses which may be obtained from the program director.

1. At least nine 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 nine credits in courses from the fields of anthropology, economics, family and consumer resources, political science, psychology, and sociology.

3. 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 reviews possible courses and decides on a final approved list, which may be obtained from the program director.

¹ See page 633 for interpretation of numbering system, signs and abbreviations

INTERDISCIPLINARY LIBERAL ARTS

COURSES OF INSTRUCTION¹ (I D)

095. Cooperative Work Experience. Cr. 0

Offered for S and U grades only. Participation in a cooperative work study situation.

101. (BKS 101) Dimensions of the Black Experience: An Introduction. Cr. 3

Interdisciplinary approach to black studies, exploring several broad issues, topics, theories, concepts and perspectives which describe and explain the black experience in America.

190. Special Topics. Cr. 1-4

Offered for S and U grades only. Lectures, assigned readings, class discussion on selected topics to be announced in *Schedule of Classes*.

201. (BKS 201) Afro-American Culture: Historical and Aesthetic Roots. Cr. 4

Prereq: I D 101 or consent of instructor. Core requirement for black studies co-major. Examination of the historical and aesthetic bases of a variety of forms of cultural reflection - language, literature, music - of the black experience in America.

221. (BKS 221) Contemporary Black Social and Political Thought: Theory and Practice. Cr. 4

Prereq: I D 101 or consent of instructor. Core requirement for Black Studies Co-Major. Surveys the major social and political themes in the black experience with emphasis on the black movements of the 1950s-1970s from a dialectical and social movements model.

301. (BKS 301) Afro-American Culture: Development and Transformation. Cr. 4

Prereq: BKS 201 or ENG 239 or consent of instructor. Theoretical perspectives on development of Afro-American creative culture and expression; emphasis on modern transformations and contemporary forms.

501. (BKS 501) The Black Community and Public Policy. Cr. 3

Prereq: I D 201 or 221 or consent of instructor. Core requirement for black studies co-major. Identifies and explores questions of black community interests, raised in relation to important issues in several areas of public policy - education, employment, equal opportunity, development of political and social institutions - which have significant impact on the black community.

504. (BKS 504) Financial Perspectives and the Black Experience. Cr. 3

Prereq: I D 201 or 221 or consent of instructor. An introduction to finance. The manner in which financial decisions and dynamics affect the career objectives and life choices of blacks (and other minorities), whose aspirations for professional careers often derive from unique sets of social, cultural and economic dynamics.

511. (BKS 511) Black Women in America. Cr. 3

Prereq: I D 201 or 221 or consent of instructor. Examination of the historical, social, political and economic oppression of black women in America: racism, sexism, marriage, motherhood, feminism, the welfare system, implications for advancement in the black community.

531. (BKS 531) Special Topics in Black Studies. Cr. 3

Prereq: I D 201 or 221 or consent of instructor. A seminar for investigating special topic areas related to the black experience - such as the black family, the black woman, and male/female relationships among black people - which emerge from contemporary or historical issues and conditions.

591. (BKS 591) Field Work in the Black Community. Cr. 4-12

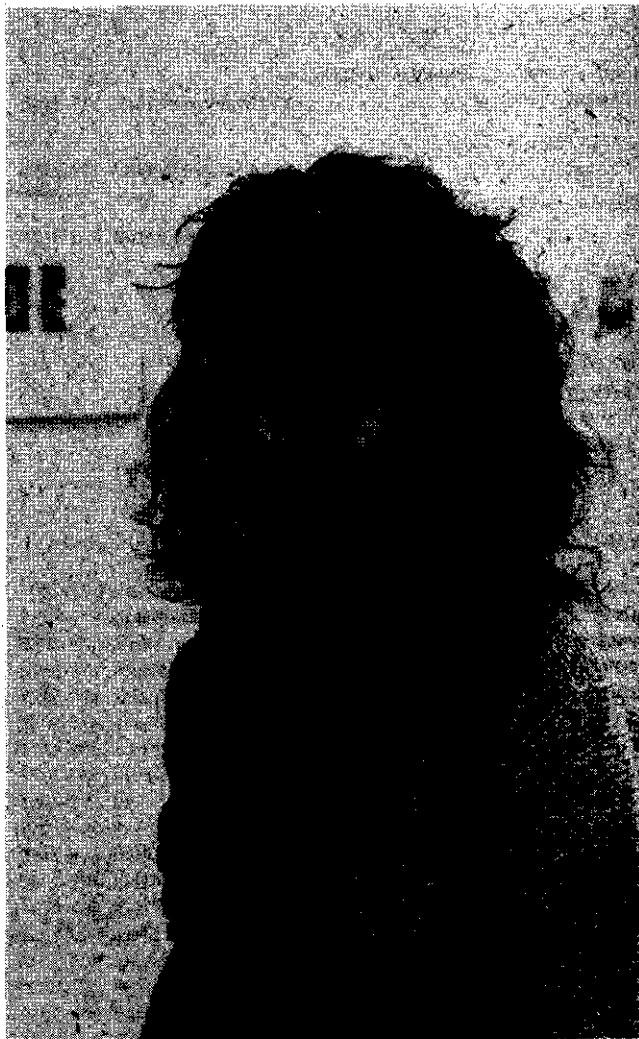
Prereq: two black studies courses and written consent of instructor. Offered for undergraduate credit only. Field placement in a variety of possible settings within community-based organizations and institutions which deal substantially with the concerns of the black community.

690. (BKS 690) Directed Study in Black Studies. Cr. 3-12

Prereq: I D 201 or 221 and written consent of instructor. Reading and research projects.

699. (BKS 699) Advanced Research Seminar. Cr. 3-12

Prereq: senior or graduate standing or consent of instructor. Specific themes or subjects for advanced level research seminar in the black experience. Topics to be announced in *Schedule of Classes*.



¹ See page 633 for interpretation of numbering system, signs and abbreviations

COLLEGE DIRECTORY

Administration

Interim Dean:

Wallace T. Williams..... 554 Mackenzie Hall, 577-2514

Associate Dean, Academic Programs and Budget:

Donald Elliott 554 Mackenzie Hall, 577-2515

Associate Dean, Academic Programs:

Martin T. Wechsler..... 576 Mackenzie Hall, 577-2522

Associate Dean, Graduate Advising:

Philip R. Abbott 538 Mackenzie Hall, 577-2690

Associate Dean, Undergraduate Advising:

Joanne V. Creighton..... 262 Mackenzie Hall, 577-3110

Assistant to the Dean:

Shirwin Collins 566 Mackenzie Hall, 577-2521

Information Officer:

Sheila Schurer 554 Mackenzie Hall, 577-2094

Undergraduate Advising

Executive Assistant, Liberal Arts Advising:

Francis T. Majeske 262 Mackenzie Hall, 577-3110

Assistant Advising Coordinator:

Charles W. Fletcher 242 Mackenzie Hall, 577-2680

Student Services Coordinator:

V. Irene Marlow 278 Mackenzie Hall, 577-3125

Advisers, Second Floor Mackenzie Hall, 577-2680:

Sandra Adell	Norman Kopmeyer
Barry Becker	Jerome Lessins
Elizabeth Berguer	Mary Schwanky
Jane Bunge	Robert Solari
Karen Gurney	Ladislav Szymanski
Helen Jankowska	Edward Trowbridge
James Koessler	

Departmental Offices

American Studies..... 826 Mackenzie Hall, 577-3200
 Anthropology..... 137 Manoogian, 577-2935
 Art and Art History..... 150 Art Wing, 577-2980
 Biological Sciences..... 210 Science, 577-2873
 Black Studies..... 586 Student Center, 577-2321
 Chemistry..... 123 Chemistry, 577-3097
 Chicano-Boriqua Studies..... 631 Merrick, 577-4378
 Computer Science..... 532 Mackenzie Hall, 577-2477
 Criminal Justice..... 6001 Cass, 577-2705
 Economics..... 960 Mackenzie Hall, 577-3345
 English..... 431 State Hall, 577-2450
 Family and Consumer Resources..... 160 Old Main, 577-2500
 Geography..... 225 State Hall, 577-2701
 Geology..... 201 Old Main, 577-2506
 Greek and Latin..... 431 Manoogian, 577-3032
 History..... 838 Mackenzie Hall, 577-2525
 Honors Program..... Second floor, Mackenzie Hall, 577-3030
 Humanities..... 631 Merrick, 577-3035
 Labor Studies..... 464 Justice, 577-4627
 Linguistics..... 137 Manoogian Hall, 577-2518
 Mathematics..... 646 Mackenzie Hall, 577-2479
 Music..... 105 Music Wing, 577-1795

Near Eastern and Asian Studies..... 437 Manoogian, 577-3015
 Peace and Conflict Studies..... 5229 Cass, 577-3453
 Philosophy..... 767 Mackenzie Hall, 577-2474
 Physics and Astronomy..... 135 Physics, 577-2721
 Political Science..... 856 Mackenzie Hall, 577-2630
 Psychology..... 71 West Warren, 577-2800
 Romance and Germanic Languages
 and Literature..... 487 Manoogian, 577-3002
 Slavic and Eastern Languages
 and Literature..... 451 Manoogian, 577-3024
 Sociology..... 758 Mackenzie Hall, 577-2930
 Speech Communication, Theatre
 and Journalism..... 585 Manoogian, 577-2943
 Urban Planning..... 212 Old Main, 577-3334
 Urban Studies..... 5229 Cass, 577-2209
 Women's Studies..... 431 State Hall, 577-3327

Mailing address for all offices:

College of Liberal Arts
 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, colleges and divisions 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. The College also makes extensive use of televised instruction.

CENTERS

The College of Lifelong Learning operates approximately six centers throughout southeast Michigan at which classes are given, registrations are taken, and counseling and other student services are provided. It also offers classes at several dozen other off-campus locations throughout the region.

For a current listing of all locations, refer to the current *Schedule of Classes* or call the College at 577-4669.

Other Instructional 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	Novi
Carleton	Oak Park
Caro	Petersburg
Chippewa Valley	Port Huron
Dearborn	Redford Township
Detroit	Royal Oak
Ecorse	St. Clair County
Eloise	Intermediate
Farmington	School District
Ferndale	St. Clair Shores
Flat Rock	Saline
Franklin	Southgate
Garden City	Sterling Heights
Grand Haven	Taylor
Greenfield Village	Temperance
Grosse Pointe Farms	Trenton
Hamtramck	Troy
Harper Woods	Warren
Jackson	Wayne
Lincoln Park	Wayne County
Livingston Intermediate	Intermediate
School District	School District
Livonia	West Bloomfield
Macomb County	Wixom
Intermediate	Woodhaven
School District	Wyandotte
	Ypsilanti

Because of the flexibility and constantly changing nature of many programs, students are asked to consult the University *Schedule of Classes* each semester 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.

DIVISION OF CREDIT PROGRAMS

Director: Robert M. Erickson, 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 are registered as non-matriculated students in the College of Lifelong Learning (credits thus earned may be applied toward degrees upon approval of the college to which the student is admitted). However, courses in the School of Business Administration numbered 600 to 609 (except MGT 608) or above are open only to students admitted to the M.B.A. 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 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

All of the University centers (listed in the *Schedule of Classes*) as well as CLL Headquarters, 6001 Cass Avenue, Detroit, provide 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 one of these offices. The counseling service offers assistance with education problems or degree objectives at no cost to the student. For further information or an appointment, telephone the location which is most convenient for you.

Registration

There are different forms and procedures for registering for courses offered off-campus. The College of Lifelong Learning has continuous registration—from the early registration period until the

end of the official final registration for each semester. (See Academic Calendar, page 4.)

Registrations may be presented at any center and at CLL headquarters on the second floor at 6001 Cass on the main campus. If registering by mail, materials and course schedules should be requested from and returned to the Office of Student Services; telephone the College headquarters, 577-4669, for the address and telephone number of this office. Mail registrations should 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. Retain the student copy of your registration. An official record of your enrollment will be forwarded to you later in the semester.

Fees

Fees for all classes offered through the College of Lifelong Learning for admitted or non-admitted students, graduate or undergraduate, can be found in the College of Lifelong Learning section of the *Schedule of Classes*. All fees are subject to change at any time without notice by action of the Board of Governors.

Students electing programs of less than four 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 or Visa 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 or Visa card, sign the statement, and submit it with their registration materials.

A late payment charge of \$10 will be added to accounts whenever a delinquent balance occurs. 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: Donna Sottile, M.Ed.

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 (beginning on page 40), or by calling 577-4505 (undergraduate program) or 577-4510 (graduate program).

With the exception of MGT 608 the courses in the 600-609 series and all 700-level courses are open only to admitted students holding matriculated graduate status. Graduate courses are numbered at the 700 level and are open only to students admitted to the M.B.A. 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*. All non-business administration students must have written approval of their adviser to enroll in School of Business Administration courses. All course prerequisites must be strictly observed.

College of Education

Coordinator: Peggy Peterson, B.A.

Coordinator, Special Projects in Education:
Roy E. Robinson, 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. Illustrative of current and developing field-based programs at the master's degree level are: elementary education (reading); secondary education (reading); educational application of humanistic psychology; gifted child education; guidance and counseling—human sexuality; learning-disabled and emotionally impaired children; and marriage counseling. Other advanced graduate programs involve curriculum and instruction; curriculum resource consultation; curriculum leadership and coordination and educational leadership.

For information on current and upcoming programs, contact the Education Program Coordinator at 577-4616.

College of Engineering

Coordinator: Joanne Juhl, B.A.

The College of Engineering offers degree programs, on-site programs, and non-credit seminars through the College of Lifelong Learning in Birmingham, Dearborn, Southfield, Trenton and Warren.

Credit Offerings: Graduate courses in mechanical engineering, undergraduate courses in engineering technology and a complete master's program in engineering management are offered off-campus. Courses in civil, chemical, and electrical engineering are also available, and specialized courses and programs have been developed for local companies.

All engineering classes are open to qualified individuals seeking professional development as well as to those in formal degree programs. Arrangements can be made for non-degree students to enroll in any on-campus classes. Those planning to pursue a degree should apply for admission and consult with a College adviser as early as possible.

Non-Credit Offerings: The College offers a variety of seminars and workshops designed for practicing engineers. The programs have covered such topics as finite element analysis, maintenance management, solar energy, and reliability in product design and testing. Attendance in these programs is recognized with continuing education units (CEUs).

Contact the Engineering Program Coordinator at 577-4707 for further information, or to be placed on our mailing list.

Division of Health and Physical Education

Coordinator: Fred A. Mulhauser, Ph.D.

The Division of Health and Physical Education offers credit courses and programs through the College of Lifelong Learning at centers throughout the metropolitan Detroit area. For the most part, the individual courses may be taken by both undergraduate and graduate students. Courses are offered in dance and dance education, health education, physical education, and recreation and park services. Individuals do not need to have matriculated status at the time of registration.

Certification in the teaching of driver education and traffic safety—a nine-credit program leading to state certification as a teacher of driver

education—is regularly offered. The program consists of three three-credit courses which must be taken consecutively. Program enrollees must possess a valid Michigan driver's license.

Detailed program and course information may be obtained from the Division of Health and Physical Education; telephone: 577-4249.

College of Liberal Arts

Coordinator: Rona Moscow, M.A.

The College of Liberal Arts offers a full range of courses and programs through the College of Lifelong Learning. All courses scheduled at off-campus centers are approved and staffed by departmental chairpersons. All carry College of Liberal Arts credit and may be used to fulfill College requirements. For information, telephone: 577-4682.

College of Nursing

Coordinator: Dorothy E. Reilly, Ed.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 as non-matriculated students in the College of Lifelong Learning. When students are admitted to a degree program, they may petition for acceptance of the course credit as part of their degree requirement.

A Bachelor of Science in Nursing degree is offered in the Metropolitan Detroit area for *registered* nurses. The program and scheduling of courses is particularly designed for part-time study for *employed* nurses.

The College of Nursing offers a post-Master's Certificate program in nursing administration, for the preparation of executive leaders in nursing. The program, designed for nurses in administrative positions, is offered in selected geographic areas.

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 Continuing Education Units 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: Donna Sottile, M.Ed.

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.

Continuing Education in Allied Health: Opportunities are scheduled periodically either to provide specialized instruction for practitioners of a single allied health profession or to address the multi- or interdisciplinary interests of the health care team members. The purpose of all allied health continuing education is to keep clinicians and educators abreast of changes and trends in health care delivery.

School of Social Work

Coordinator: Rona Moscow, M.A.

Undergraduate and graduate courses are offered by the School of Social Work through the College of Lifelong Learning. The courses are offered in a variety of locations throughout metropolitan Detroit to meet the educational needs of full-time and part-time social work students and practicing social workers.

Courses in the School of Social Work offered for credit through the College of Lifelong Learning are taught by both full-time and part-time School of Social Work faculty and have the same requirements, expectations, and creditation as those courses taught on campus.

Courses in social work offered through the College of Lifelong Learning serve as: 1) a convenience for full-time students in degree programs of the School of Social Work (i.e., students working toward either the Bachelor of Social Work degree or the Master of Social Work degree); 2) a means for updating or extending knowledge of social work practitioners who have already received a professional degree, but who may wish to return and take additional courses; 3) an introduction to the profession for those students who want an exploratory course about the profession before formally applying to the School of Social Work; and 4) an opportunity to begin part-time professional study. For information from the School of Social Work, telephone: 577-4409.

Travel/Study Programs

Coordinator: Yvonne E. Doolittle

All Wayne State University travel/study programs are offered through the College of Lifelong Learning for the sponsoring colleges and schools. Times and locales may change from year to year; in the past, most programs have occurred during the summer months in such widely divergent places as the United States, Canada, Bermuda, Europe, Russia, and the Middle East. Recently, travel/study courses have been available in art history, consumer affairs, comparative education, gerontology, foreign languages and the humanities. For information, telephone: 577-4659.

DIVISION OF NON-CREDIT PROGRAMS

Director: Mary Kay Reed, Ed.D.

The Division of Non-Credit Programs bears the administrative responsibility for all off-campus non-credit programs whether offered by the College of Lifelong Learning or any other school or college of Wayne State University. The offerings range widely both in subject matter and in length of time required for completion. For information, telephone: 577-4665.

Continuing Education Unit (CEU)

A large number of the non-credit offerings has been approved for Continuing Education Units (CEU) on the basis of one CEU for each ten hours of class time. The CEU is a nationally recognized measure of non-credit activity which makes possible a uniform method of evaluating and recording academic work not provided for in the credit-awarding curricula of the University.

For information, telephone: Mary Kay Reed, Chairperson, CEU Approval Committee; 577-4665.

Professional Programs

Coordinator: Nancy Grose, B.S.

The Professional Program is designed to assist in personal career advancement or in preparation for new careers. Sequential-course programs are offered in many technical, managerial, and administrative areas and are taught by highly qualified working professionals from various fields.

The Division is prepared to construct programs in any location, for any significant body of interested students, where the demand seems to justify doing so. For information, telephone: 577-4710.

Academic Conferences and Institutes

This unit is responsible for the design, coordination, and administration of non-credit conferences and institutes whose subject matter relates them directly to one of the academic units of the University. Coordinators of conferences and institutes are prepared to undertake the complete management of short programs including: (1) Program design; (2) Publicity and promotion; (3) Financial management; (4) Program materials; (5) Faculty recruitment; (6) Physical facilities. For information, telephone: 577-2400.

McGregor Memorial Conference Center

Director: John Fraser, B.A.

The McGregor Memorial Conference Center serves community organizations and professional associations through special short-term learning events: conferences, workshops, seminars, and formal meetings.

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.

The McGregor staff has strong capability in subject research, program design and coordination, financial administration, design and writing of program materials and presentations, identification of faculty

resources, and the scheduling of national speakers. 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.

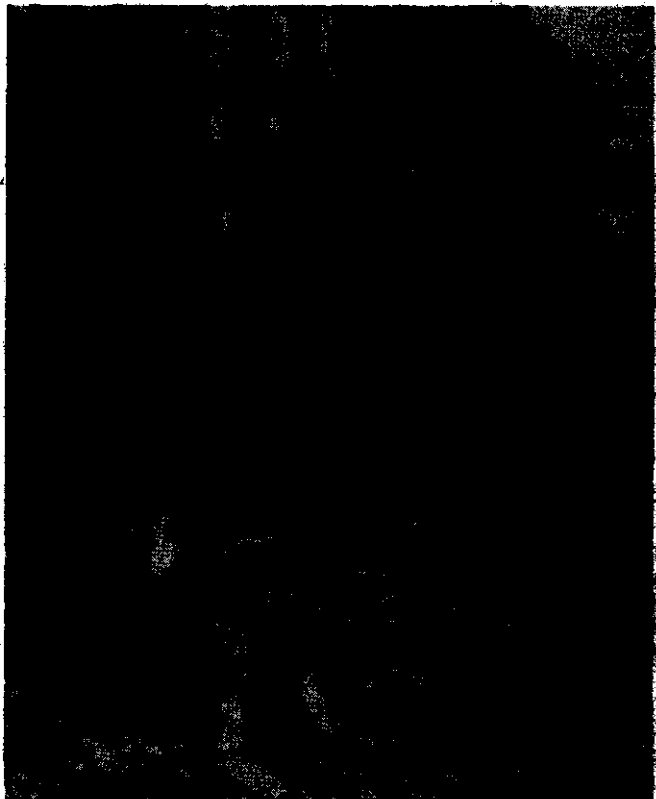
DIVISION OF COMMUNITY EDUCATION

Assistant Director: Mary C. Dickson, Ed.Sp.

The Division of Community Education was designed to provide and extend ways the resources and expertise of Wayne State University may be applied to meet the specific needs of residents in the metropolitan Detroit area. The Division works closely with the public and private sector to assess continuing educational needs of agency staff and community residents. No entrance examination or application fee is required, and all courses are taught by University faculty.

High school or GED graduates are eligible to take Liberal Arts accredited courses through the Division of Community Education. For the convenience of students, most courses meet once weekly, days, afternoons or evenings. Classes are offered at the East Side Center, the Northwest Center, the Wayne State main campus, and downtown Detroit. Students are assigned counselors who will provide career advising, financial aid information and tutorial services at no additional cost. Upon completion of 16 credits with a 'C' average, or 12 credits with a 'B' average, students are admissible to other degree-granting programs of Wayne State University.

The Division of Community Education also sponsors the Federal Metro College (FMC) program, designed to meet the needs of federal, state, and municipal public service employees by providing courses at convenient downtown locations such as the City-County Building, the Main Post Office, the Old Federal Building, and the McNamara Building. The FMC program assists employees in gaining additional skills and upward mobility.



UNIVERSITY STUDIES/WEEKEND COLLEGE PROGRAM

Office: Fourth Floor, Criminal Justice Institute, 6001 Cass

Director: Ernst Benjamin, Ph.D.

Wayne State University established the University Studies/Weekend College Program (US/WCP) in 1974 to make University education more accessible to working adults with family responsibilities. The Program offers the Bachelor of General Studies degree. It differs from other adult education programs in two respects. The course design enables students to concentrate on a single broad theme each term and provides course sequences planned to assure a comprehensive general education. Second, each theme is presented through a group of three distinct but coordinated courses and the following combination of teaching methods:

Workshop Course: Small discussion groups of twelve to twenty students meet once each week for four hours with an instructor. They are scheduled for maximum student convenience, mornings and evenings, at many locations in southeastern Michigan.

Television Course: Produced by Wayne State University and aired over Channels 4 and 56, daily half-hour programs are scheduled for early morning and repeated in the early evening.

Conference Course: Conferences meet during three weekends each semester on the Wayne State campus. Advance preparation and post-conference evaluations are usually done in the accompanying workshop.

Most US/WCP students are able to complete three courses per semester, one of each of the above types, and to fulfill the requirements for a Bachelor of General Studies degree in four to six years. Students who need reduced credit loads because of scheduling problems or personal responsibilities are encouraged to proceed at a slower pace.

Electives, Directed Study, and other course work may be arranged as needed to meet individual educational goals. Such courses, however, are usually taken only after several semesters in the Weekend College Program.

Registration Office

Central US/WCP Registration Office

4th Floor - Justice Building, 6001 Cass
Wayne State University
Detroit, Michigan 48202
Telephone: 577-0832

For information about other registration locations, please telephone the University Studies/Weekend College Program at 577-0832.

Admission

For admission to the US/WCP, 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.

New students apply to Wayne State University for admission to US/WCP at *Orientation/Registration* sessions (see below), complete admission documents, and pay the WSU application fee. Forms and mailed transcripts, documenting previous educational credit, are processed afterwards—usually in the semester following the student's

initial registration. A student who has previously attended Wayne State University need not reapply.

Orientation/Registration

Prior to the beginning of each semester, new students participate in orientation sessions where the US/WCP is fully explained through lecture presentations, group discussions and questions, films, and slides. Those wishing to do so may register at the close of each orientation session with a counselor. Orientation/registration sessions are held before the beginning of every semester at the Central Registration Office (above), as well as at many other locations, all of which are listed in a *Schedule of Classes* published every semester by the US/WCP. The *Schedule* is available well before the beginning of each semester.

Continuing Registration

Toward the end of each semester, counselors visit US/WCP classes to register students for the following term. Students are notified by mail of the exact dates for in-class registration. Registrations may also be returned by mail (registered mail is recommended), but registrations must be completed by students before they can attend classes.

Any student not registered during in-class registration sessions may subsequently register without penalty at the US/WCP Central Registration Office (or at convenient Orientation/registration sessions), until the last working day prior to the first day of classes each semester. Registration Office hours and field locations may be obtained from the US/WCP Central Registration Office.

Degree Requirements

Candidates for the Bachelor of General Studies (B.G.S.) degree must complete a total of 120 semester credits with a cumulative honor point average of 2.0. One Language Arts workshop (GIS 151) must be successfully completed before the end of the student's third full semester in US/WCP. A minimum of twenty-four credits is required in each of the following sequences, outlined below: Science and Technology (GST), Social Science (GSS), and Urban Humanities (GUH). Students must also complete successfully sixteen credits in the Foundations of Knowledge (GIS) course sequences, and eight credits in either the Senior Seminar or the Senior Essay/Project (AGS) course sequence.

Curriculum

The curriculum, organized to minimize unrelated course sequences, emphasizes interdisciplinary themes which allow students to build upon a coherent educational experience.

Note: Students need not pursue Lower Division course work in any specified order, but it is advisable to complete twenty-four credits in one sequence before beginning another.

Language Arts (GIS)—4 Credits

151 Communication Skills. Workshop.

Science and Technology (GST)—24 Credits

201 Life and the Environment. Workshop.

202 Changing Life on Earth. TV Course.

203 Conference on Biomedical Issues.

231 Energy Needs and Modern Society. Workshop.

232 Energy, Technology and Society. TV Course.

233 Current Issues in Energy Policy. Conference.

- 271 Social Values and Technological Change. Workshop.
- 272 Values, Technology and Society. TV Course.
- 273 Conference on Socio-Technological Issues.

Social Science (GSS)—24 Credits

- 201 Problems in Work and Labor. Workshop.
- 202 Work and Society. TV Course.
- 203 Conference on Work and Labor Today.
- 231 Perspectives on Conflict. Workshop.
- 232 Studies in Domestic and International Conflict. TV Course.
- 233 Conference on Analysis of Conflict and Conflict Issues in the Modern World.
- 271 Selected Perspectives on Ethnicity. Workshop.
- 272 Culture, Community and Identity. TV Course.
- 273 Conference on Contemporary Issues in Ethnic Studies.

Urban Humanities (GUH)—24 Credits

- 201 Cultural Identity and the American Experience. Workshop.
- 202 An American Mosaic. TV Course.
- 203 Visions of America. Conference.
- 231 Modes of Perception. Workshop.
- 232 Patterns of Rebirth. TV Course.
- 233 Critical Perspectives of Everyday Life. Conference.
- 271 Art and Aesthetics. Workshop.
- 272 Cultural Expression and the Arts. TV Course.
- 273 The Initial Experience. Conference.

Foundations of Knowledge (GIS)—16 Credits

- 303 Foundations of Knowledge Conference: Technological Man.
- 306 Foundations of Knowledge Seminar: Cross-Cultural Perspective.
- 313 Foundations of Knowledge Conference: Varieties of Knowledge.
- 316 Foundations of Knowledge Seminar: Historical Perspective.
- 323 Foundations of Knowledge Conference: Dialogue of Two Cultures.
- 326 Foundations of Knowledge Seminar: Methods of Search.

Advanced General Studies (AGS)—8 Credits

- 476 Senior Seminar I: Comparative Civilizations.
- 486 Senior Seminar II: Problems of Humanity.
- 491 Senior Essay/Project Seminar I.
- 496 Senior Essay/Project Seminar II.

Electives—24 Credits

Because the US/WCP does not offer 'majors' or 'concentrations' as part of its curriculum requirements, the twenty-four credit elective block may be used by qualified students to do concentrated course work in other WSU colleges and schools, either directly, or through College of Lifelong Learning offerings. Students may also take elective course work through topical general studies courses, labor or urban studies electives which are offered by the US/WCP every semester.

The US/WCP Student Services Division has developed specialization curricula as aids for students planning elective work outside the Program, and counselors are prepared to assist in selecting electives. Students wishing to register for elective course work outside WSU should see a counselor before proceeding.

Residency Requirement

An applicant for the degree of Bachelor of General Studies must complete at least forty semester credits within the Program. Twenty-four of those credits must be applied to the Foundations of Knowledge (GIS) course sequence and to the Senior Seminar or Senior

Essay/Project (AGS) sequence. (See Degree Requirements above.)

Transfer of Credit

Credit for courses taken at community colleges and other accredited institutions of higher education may be transferred to the US/WCP provided that: (1) the student has been accepted as matriculated in the College of Lifelong Learning, and (2) the grades for these courses have been satisfactory. A maximum of sixty-four semester credits or ninety-six quarter credits may be transferred from a community college. A maximum of eighty credits may be transferred from a four-year college. In addition, elective credit will be granted for successful completion of CLEP tests, police academy training, and military training.

Probation

If the student's work falls below a 2.0 honor point average, he/she will be placed on probation and an academic hold will be placed on his/her record. The student will then be required to obtain permission from the US/WCP Student Services Office before registering again. Such permission will be granted only after an interview with the student.

Fees

Matriculated students in the US/WCP pay tuition according to the regular campus fee schedule (see page 10).

Counseling

The counselors of the US/WCP Division of Student Services (see Registration Office, above) are available to provide a broad range of information and assistance concerning University programs of study and various academic regulations. Students in the US/WCP work out programs of study and register for their courses with a counselor each semester.

Financial Aid

Financial assistance is available on a limited basis to help students meet their educational expenses. Interested students should call the US/WCP Central Office, 577-0832, or the University Office of Scholarships and Financial Aids, 577-3378.

The US/WCP Women's Scholarship Fund provides partial to full grants to qualified women who demonstrate financial need.

US/WCP Course Options

Labor Studies: Developed in cooperation with Wayne State's Institute of Labor and Industrial Relations and its Labor Advisory Committee, the curriculum provides workers with labor-oriented, interdisciplinary courses in Science and Technology, Social Science, and Urban Humanities developed by the US/WCP, and specialized labor studies courses developed by the College of Liberal Arts.

Urban Studies: The Urban Studies curriculum is interdisciplinary and uses a generalized approach to analyze the many and varied problems facing urban areas today, especially Detroit. One year is devoted to each of the three major divisions of the US/WCP. Subsequent course work is available for advanced studies designed to meet the specific needs of the urban studies student.

Graduation With Honors

Distinction:

3.3 h.p.a. - 100 semester credits in residence with a grade of 'B-plus' on the Senior Essay/Project;

3.4 h.p.a. - 60-99 semester credits in residence with a grade of 'B-plus' on the Senior Essay/Project.

High Distinction:

3.6 h.p.a. - 100 semester credits in residence with a grade of 'A' on the Senior Essay/Project;

3.7 h.p.a. - 60-99 semester credits in residence with a grade of 'A' on the Senior Essay/Project.

Please note : the optional Senior Seminar sequence is not acceptable for credit towards Graduation with Honors.



COURSES OF INSTRUCTION¹ UNIVERSITY STUDIES/WEEKEND COLLEGE PROGRAM

General Science and Technology (GST)

186. Seminar in Interdisciplinary Science and Technology. Cr. 4-12

Selected studies in science and technology approached from an interdisciplinary perspective. Seminars may include: a practical and theoretical guide to the human body; geology and geography of Michigan; and psycho-chemical, psychosomatic and mental illness. Topics announced each semester.

190. Science and Technology: Directed Study. Cr. 2-4 (Max. 12)
Prereq: consent of instructor. Directed study supervised by a faculty member; appropriate if no course of instruction available in desired subject area.

201. Life and the Environment. Cr. 4
Critical health issues relevant to an industrialized society form the basis of this workshop course: the ecological and ethical factors associated with health in an urban context.

202. Changing Life on Earth. Cr. 4
Interplay of biological and energy systems from the micro world of the cell to the macro universe of mankind. Television course.

203. Conference on Biomedical Issues. Cr. 4
Semester-long course with periodic weekend sessions. Topics may include: aging and death; the delivery of health care; health and disease, and bioethics. Topics and dates announced each semester.

231. Energy Needs and Modern Society. Cr. 4
Workshop course leads students to consider problems and exercises concerned with energy that focus on the experimental approach to problem-solving, developing mathematical, reading and analytical skills and exploring fundamental principles of the concept of energy.

232. Energy, Technology and Society. Cr. 4
Television course examines the total energy needs of a modern society, against a backdrop of the energy systems already created. The capabilities and limitations of technology to continue to satisfy society's demand for more energy.

233. Current Issues in Energy Policy. Cr. 4
Semester-long course with periodic weekend sessions. Topics may include: nuclear energy, nuclear waste management; food technology and agriculture; solar energy, and alternative energy sources. Dates and themes announced each semester.

271. Social Values and Technological Change. Cr. 4
Interaction of a particular technological change with social organization and values. Computer technology is considered in depth as such a case study.

272. Values, Technology and Society. Cr. 4
Television course. History of technosocial change, impacts of new technics, international aspects of technology, and the nature and uses of models, changes in work and leisure, and theoretical analysis of technological change.

¹ See page 633 for interpretation of numbering system, signs and abbreviations.

273. **Conference on Socio-Technological Issues. Cr. 4**
Semester-long course with periodic weekend sessions. Conference themes and dates announced each semester.

General Social Sciences (GSS)

186. Seminar in Interdisciplinary Social Science. Cr. 4-12

Selected studies in social science approached from an interdisciplinary perspective. Seminars may include: black perspective on history; the history of disease; social perspectives on human sexuality; introduction to death and dying; and ethnocultural perspectives. Topics announced each semester.

190. Social Science: Directed Study. Cr. 2-4 (Max. 12)

Prereq: consent of instructor. Directed study supervised by a faculty member; appropriate if no courses of instruction are available in desired subject area.

201. Problems in Work and Labor. Cr. 4

Workshop course emphasizing problems related to the nature of work and jobs.

202. Work and Society. Cr. 4

Multidisciplinary television course defines and examines the problem of work and the lives of working people in modern society.

203. Conference on Work and Labor Today. Cr. 4

Semester-long course with periodic weekend sessions. Analysis of specific economic and social issues related to institutions and individuals in modern American society. Dates and themes announced each semester.

231. Perspectives on Conflict. Cr. 4

Workshop course: phenomena of human conflict, emphasizing particular perspectives appropriate to the focus and types of conflict chosen for investigation.

232. Studies in Domestic and International Conflict. Cr. 4

Television course delineates the pervasiveness of conflict in human experience, using a multi-disciplinary approach to demonstrate both the constructive and destructive effects of conflict at various levels.

233. Conference on Analysis of Conflict and Conflict Issues in the Modern World. Cr. 4

Semester-long course with periodic weekend sessions convened. Course work focuses on specific types of human conflict or conflict events. Dates and topics announced each semester.

271. Selected Perspectives on Ethnicity. Cr. 4

From the viewpoints of various social science disciplines, people and peoples are defined and studied. Workshop discussions include: cultures, interactions, life patterns, personality development, and the institutions of various groups of people.

272. Culture, Community and Identity. Cr. 4

Television course. Concepts of culture, community and identity examined as reflective of social life in North America and as analytic tools which are used by social scientists to broaden our understanding.

273. Conference on Contemporary Issues in Ethnic Studies. Cr. 4

Semester-long course with periodic weekend sessions. Focus on institutions, neighborhoods, and ethnic groups; analysis of selected social problems, emphasizing the ethnic component. Dates and themes are announced each semester.

General Urban Humanities (GUH)

186. Seminar in Interdisciplinary Humanities. Cr. 4-12

Selected studies in humanities approached from an interdisciplinary perspective. Seminars may include: the saga of the frontier; media, art and society; politics and the arts. Topics announced each semester.

190. Urban Humanities: Directed Study. Cr. 2-4 (Max. 12)

Prereq: consent of instructor. Directed study supervised by a faculty member; appropriate if no course of instruction available in desired subject area.

201. 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.

202. 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.

203. Visions of America Conference. Cr. 4

Semester-long course with periodic weekend sessions. Conference explores particular aspects of American society and culture, both as Americans and as people living in other parts of the world, past and present, have seen them. Topics and dates announced each semester.

231. Modes of Perception. Cr. 4

Study of a variety of art forms, analytical approaches and activities; workshop exploration of modes of human perception or ways of knowing.

232. Patterns of Rebirth. Cr. 4

Television course explores the theme of rebirth in broadly interdisciplinary dimensions. The idea of rebirth in myth, religion, social and political systems, psychology, the arts, and modern popular culture.

233. Critical Perspectives of Everyday Life. Cr. 4

Semester-long course with periodic weekend sessions. Ethical and philosophical themes critical to the modern world. The exploration involves a review of artistic expressions of these themes, as well as a survey of analytical treatments. Topics and dates announced each semester.

271. Art and Aesthetics. Cr. 4

Workshop to evaluate thematic and stylistic aspects and aesthetics of the artist's world.

272. Cultural Expression and the Arts. Cr. 4

Television course investigates the interplay of artists, art forms and environment in local, national, and international contexts.

273. The Initial Experience. Cr. 4

Semester-long conference course with periodic weekend sessions. Meaning and experience of art from the perspectives of artist and audience. Art forms considered include literary, visual, and performing modes of expression.

General Interdisciplinary Studies (GIS)

151. Communication Skills. Cr. 4(Max. 8)

Must be taken in first 36 hours in US/WC Program. Successful completion required for B.G.S. The workshop stresses general language awareness and communication skills: grammar, style, organization, essay types, efficient reading, note-taking, summarizing, proofreading, footnoting, and library skills.

156. Communication Skills. Cr. 4(Max. 8)

Must be taken in first 36 hours in US/WC Program. Successful completion required for B.G.S. The workshop stresses general language awareness and communication skills: grammar, style, organization, essay typed, efficient reading, note-taking, summarizing, proofreading, footnoting, and library skills.

301. Introduction to Interdisciplinary Studies. Cr. 4

Prereq: junior standing and eight semester credits each in social sciences and natural sciences, and eight semester credits in humanities beyond freshman composition, or consent of Director or designee. Definition and contrast of the concepts of academic discipline and interdisciplinary study. Presentation of origins and history of the disciplines and their epistemological bases. How interdisciplinary study builds upon and transcends the achievements of the disciplines.

303. Foundations of Knowledge Conference: Technological Man. Cr. 4

Prereq: upper division standing or consent of instructor. Semester-long course with periodic weekend sessions. Cross-cultural, pluralistic perspective on the technological nature of man in his social and political interaction with others, and in his symbiotic relationship with nature. Dates and topics announced each semester.

304. Foundations of Knowledge: Directed Study. Cr. 4(Max. 12)

Prereq: upper division standing or consent of instructor. Appropriate only when other foundations of knowledge courses are unavailable. Materials for the course are drawn from topics developed for the foundations of knowledge seminars and conferences.

306. Foundations of Knowledge Seminar: Cross-Cultural Perspectives. Cr. 4

Prereq: upper division standing or consent of instructor. Cross-cultural, pluralistic approach to knowledge as a work of civilizations across space and time; critical analysis of philosophical, social, and scientific theories as the result of dynamic interaction of the human mind and nature in a varied, pluralistic world.

308. Topics in Interdisciplinary Studies. Cr. 4

Coreq: GIS 301. Conference; examples of interdisciplinary research demonstrating the utility and limitations of this approach, compared with traditional disciplinary methods.

313. Foundations of Knowledge Conference: Varieties of Knowledge. Cr. 4

Prereq: upper division standing or consent of instructor. Semester-long course with periodic weekend sessions. Varieties of knowledge - empirical, scientific, moral, mystic, poetic - and the experiential and cultural contexts in which they are acquired, revised, and applied.

316. Foundations of Knowledge Seminar: Historical Perspective. Cr. 4

Prereq: upper division standing or consent of instructor. Analysis of human experience as shaped by historical forces - political, social, economic, intellectual, technological and ecological.

323. Foundations of Knowledge Conference: Dialogue of Two Cultures. Cr. 4

Prereq: upper division standing or consent of instructor. Semester-long course with periodic weekend sessions. Selected topics designed to bring the sciences and humanities into dialogue. Dates and topics announced each semester.

326. Foundations of Knowledge Seminar: Methods of Search. Cr. 4

Prereq: upper division standing or consent of instructor. Exposition and critical analysis of the various techniques and strategies for generating, classifying, analyzing and validating knowledge in the humanities and social and natural sciences. Direct student experience.

384. General Interdisciplinary Directed Study. Cr. 4-12

Prereq: upper division standing and prior consent of instructor. Elective: Directed study supervised by a faculty member. Appropriate if no courses of instruction are available covering desired interdisciplinary topic area.

386. Interdisciplinary/Integrated Advanced Studies Seminar. Cr. 4-12

Prereq: upper division standing or consent of instructor. Elective. Explorations of the theoretical implications of the basic course sequences in social science, science and technology, and urban humanities. Topics and dates announced each semester.

Advanced General Studies (AGS)

334. Advanced Directed Study: Science and Technology. Cr. 4(Max. 12)

Prereq: upper division standing and consent of instructor. Directed study supervised by a faculty member. Appropriate if no courses of instruction are available covering desired science and technology topic area. Elective.

336. Science and Technology Advanced Studies Seminar. Cr. 4(Max. 12)

Prereq: upper division standing or consent of instructor. Current and historical studies of issues and topics from interdisciplinary science and technology. Topics announced each semester. Elective.

344. Advanced Directed Study: Social Science. Cr. 4(Max. 12)

Prereq: upper division standing and consent of instructor. Advanced directed study supervised by a faculty member. Appropriate if no courses are available covering desired social science topic area. Elective.

346. Social Science Advanced Studies Seminar. Cr. 4(Max. 12)

Prereq: upper division standing or consent of instructor. Area and period studies, problems and themes in interdisciplinary social science. Topics announced each semester. Elective.

354. Advanced Directed Study: Urban Humanities. Cr. 4(Max. 12)

Prereq: upper division standing and consent of instructor. Directed study supervised by a faculty member. Appropriate if no courses of instruction are available covering desired humanities topic area. Elective.

356. Urban Humanities Advanced Studies Seminar. Cr. 4(Max. 12)

Area and period studies, problems and themes from interdisciplinary urban humanities. Topics announced each semester.

403. Senior Elective Conference I. Cr. 4

Prereq: upper division standing or consent of instructor.

Semester-long course with periodic weekend sessions. Dates and topics announced each semester. Offered once each academic year.

413. Senior Elective Conference II. Cr. 4

Prereq: upper division standing or consent of instructor. Semester-long course with periodic weekend sessions. Dates and topics announced each semester. Offered once each academic year.

423. Senior Elective Conference III. Cr. 4

Prereq: upper division standing or consent of instructor. Semester-long course with periodic weekend sessions. Dates and topics announced each semester. Offered once each academic year.

455. Field Studies/Practicum. Cr. 2-4(Max. 12)

Prereq: upper division standing and consent of instructor. Study opportunities in a non-traditional 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 specific skills. The ratio of clock hours to credits is 15 to 1.

476. Senior Seminar I: Comparative Civilizations. Cr. 4

Prereq: upper division standing or consent of instructor. A seminar on topics determined by the upper division faculty is designed to draw together and reassess fundamental values and themes underlying the US/WCP curriculum. Core readings and a substantial paper are assigned.

486. Senior Seminar II: Problems of Humanity. Cr. 4

Prereq: AGS 476, upper division standing or consent of instructor. Topics determined by the upper division faculty in science and technology, social science, and the humanities to be announced each semester. Readings and a substantial paper are assigned.

491. Senior Essay/Project Seminar I. Cr. 4

Prereq: upper division standing and recommendation of upper division faculty. Research for and development of a senior essay or project on a topic approved by the directing faculty adviser.

496. Senior Essay/Project Seminar II. Cr. 4

Prereq: AGS 491. Continuation of first seminar, culminating in an oral presentation before a faculty panel and submission of the completed essay or project for approval by that panel.

FACULTY

Dean: Robert E. Hubbard

Associate Dean: Allen A. Hyman

Director of Administrative Services: Ralph R. Thiel

Director of Student Services: Edward Cieslak

Director, McGregor Memorial Conference Center:

John Fraser

Director, University Credit Programs: Robert M. Erickson

Director, Division of Non-Credit Programs: Mary K. Reed

Director, University Studies/Weekend College Program:

Ernst Benjamin

Associate Director for Student Services: Paul Fiedler

Assistant Director: Carlton Maley

Professors

Jerry C. Bails, H. Merrill Jackson, Clifford Maier, Rolland Wright

Associate Professors

Marietta Baba, Eric Bockstael, David Bowen, Martin Glaberman, Julie Klein, Carlton Maley, Guerin Montilus, Richard Raspa, Seymour Riklin, Norma Shifrin, Thomas F. Waters, Jr., James Woodyard

Assistant Professors

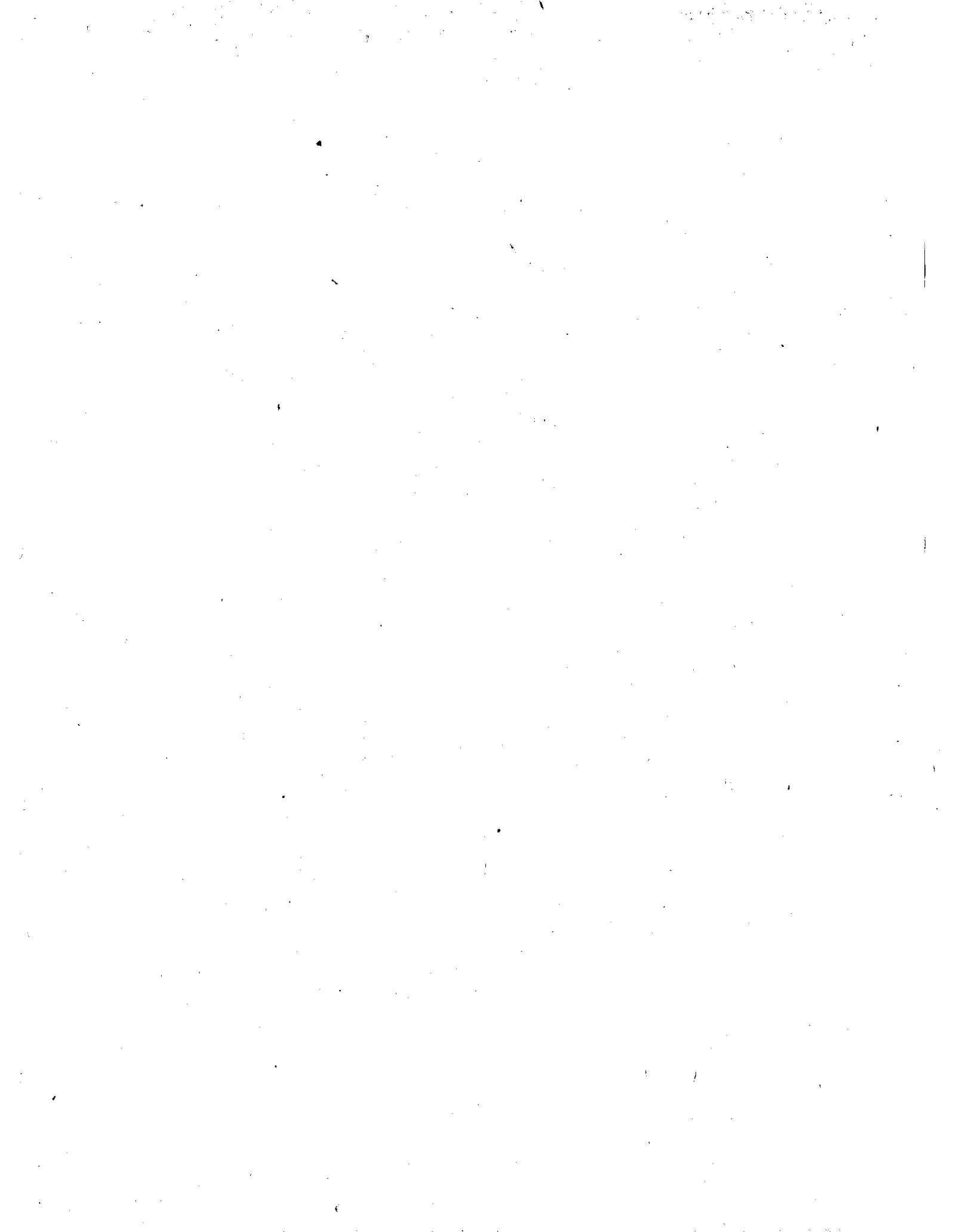
Sandor Agocs, Chauth Ram Arora, Marvin Bobes, Mary Lee Field, Joan B. Fiscella, Peter J. Friedlander, Andre W. Furtado, Judith L. Gardner, Gloria L. House, Claude F. Jacobs, David L. Jacobs, Theodore A. Kotila, David H. Levey, Susanne Levy, Penelope Majeske, Beatrice M. Manz, James Michels, Hope E. Palmer, Carl E. Rollyson, Jr., Roslyn Schindler, Francis R. Shor, R. Fred Wacker, Saul Wineman

Instructors

Krista L. English, Milton Hill, Kristine Lessins, Ellen Liss

College of Lifelong Learning Directory

Admissions, Counseling, Registration.....	642-2661
Business Administration Courses.....	577-4510
Community Education.....	577-4695
Dean	577-4675
Driver Education Courses.....	577-4249
Education Courses.....	577-4616
Engineering Courses.....	577-4707
Federal Metro College Program.....	577-0855
General Information	577-4669
Health and Physical Education Courses	577-4249
Liberal Arts Courses.....	577-4682
McGregor Memorial Conference Center.....	577-2400
Non-Credit Programs	577-4710
Nursing Courses (Graduate).....	577-4100
Social Work Courses	577-4682
University Studies/Weekend College Program.....	577-0832



School of Medicine

DEAN: HENRY L. NADLER

Academic Calendar 1982-1984

YEAR I

Registration.....	Mon., Aug. 23 - Fri., Aug. 27, 1982
Orientation.....	Fri., Aug. 27, 1982
Classes Begin.....	Mon., Aug. 30, 1982
Thanksgiving Recess.....	Thurs. and Fri., Nov. 25-26, 1982
Christmas Recess.....	Fri., Dec. 24, 1982 - Mon., Jan. 3, 1983
Spring Recess.....	Sat., April 11 - Sun., April 17, 1983
Memorial Day Recess.....	Mon., May 30, 1983
Independent Study and Review.....	To be assigned
Final Comprehensive Examination.....	Thurs. and Fri., June 9-10, 1983
Classes End.....	Fri., June 10, 1983

YEAR II

Registration.....	Mon., Aug. 23 - Fri., Aug. 27, 1982
Classes Begin.....	Mon., Aug. 30, 1982
Thanksgiving Recess.....	Thurs. and Fri., Nov. 25-26, 1982
Christmas Recess.....	Fri., Dec. 24, 1982 - Mon., Jan. 3, 1983
Spring Recess.....	Sat., March 19 - Sun., March 27, 1983
Memorial Day Recess.....	Mon., May 30, 1983
Independent Study and Review.....	To be assigned
Final Comprehensive Examination.....	Thurs. and Fri., June 2-3, 1983
Classes End.....	Fri., June 3, 1983

YEAR III

Registration.....	Mon., June 28 - Fri., July 2, 1982
Classes Begin.....	Mon., July 5, 1982
Rotation I.....	Mon., July 5 - Sat., Sept. 24, 1982
Rotation II.....	Mon., Sept. 27 - Sat., Dec. 18, 1982
Rotation III.....	Mon., Jan. 3 - Sat., March 26, 1983
Rotation IV.....	Mon., March 28 - Sat., June 18, 1983
Labor Day Recess.....	Mon., Sept. 6, 1982
Thanksgiving Recess.....	Thurs. and Fri., Nov. 25-26, 1982
Christmas Recess.....	Sun., Dec. 19, 1982 - Sun., Jan. 2, 1983
Memorial Day Recess.....	Mon., May 30, 1983
P-M-P Examination.....	To be assigned
Classes End.....	Sat., June 18, 1983

YEAR IV

Registration.....	Mon., June 28 - Wed., June 30, 1982
Classes Begin.....	Thurs., July 1, 1982
Period I.....	Thurs., July 1 - Sat., July 31, 1982
Period II.....	Sun., Aug. 1 - Tues., Aug. 31, 1982
Period III.....	Wed., Sept. 1 - Thurs., Sept. 30, 1982
Period IV.....	Fri., Oct. 1 - Sun., Oct. 31, 1982
Period V.....	Mon., Nov. 1 - Tues., Nov. 30, 1982
Period VI.....	Wed., Dec. 1 - Fri., Dec. 31, 1982
Period VII.....	Sat., Jan. 1 - Mon., Jan. 31, 1983
Period VIII.....	Tues., Feb. 1 - Mon., Feb. 28, 1983
Period IX.....	Tues., March 1 - Thurs., March 31, 1983
Period X.....	Fri., April 1 - Sat., April 30, 1983
Period XI.....	Sun., May 1 - Tues., May 31, 1983
Labor Day Recess.....	Mon., Sept. 6, 1982
Residency Matching Day.....	To be assigned
Commencement.....	Sun., June 5, 1983

YEAR I

Registration.....	Mon., Aug. 29 - Fri., Sept. 2, 1983
Orientation.....	Fri., Sept. 2, 1983
Classes Begin.....	Tues., Sept. 6, 1983
Thanksgiving Recess.....	Thurs. and Fri., Nov. 24-25, 1983
Christmas Recess.....	Sat., Dec. 24, 1983 - Mon., Jan. 2, 1984
Spring Recess.....	Sat., April 14 - Sun., April 22, 1984
Memorial Day Recess.....	Mon., May 28, 1984
Independent Study and Review.....	To be assigned
Final Comprehensive Examination.....	To be assigned
Classes End.....	To be assigned

YEAR II

Registration.....	Mon., Aug. 29 - Fri., Sept. 2, 1983
Classes Begin.....	Tues., Sept. 6, 1983
Thanksgiving Recess.....	Thurs. and Fri., Nov. 24-25, 1983
Christmas Recess.....	Sat., Dec. 24, 1983 - Mon., Jan. 2, 1984
Spring Recess.....	Sat., April 14 - Sun., April 22, 1984
Memorial Day Recess.....	Mon., May 28, 1984
Independent Study and Review.....	To be assigned
Final Comprehensive Examination.....	To be assigned
Classes End.....	To be assigned

YEAR III

Registration.....	Tues., July 5 - Fri., July 8, 1983
Classes Begin.....	Mon., July 11, 1983
Rotation I.....	Mon., July 11 - Sat., Sept. 24, 1983
Rotation II.....	Mon., Sept. 26 - Sat., Dec. 10, 1983
Rotation III.....	Tues., Jan. 3 - Sat., March 17, 1983
Rotation IV.....	Mon., March 19 - Sat., June 2, 1984
Labor Day Recess.....	Mon., Sept. 5, 1983
Thanksgiving Recess.....	Thurs. and Fri., Nov. 24-25, 1983
Christmas Recess.....	Sun., Dec. 11, 1983 - Mon., Jan. 2, 1984
Memorial Day Recess.....	Mon., May 28, 1984
P-M-P Examination.....	To be assigned
Classes End.....	Sat., June 2, 1984

YEAR IV

Registration.....	Mon., June 27 - Fri., July 1, 1983
Classes Begin.....	Tues., July 5, 1983
Period I.....	Tues., July 5 - Sun., July 31, 1983
Period II.....	Mon., Aug. 1 - Wed., Aug. 31, 1983
Period III.....	Thurs., Sept. 1 - Fri., Sept. 30, 1983
Period IV.....	Sat., Oct. 1 - Mon., Oct. 31, 1983
Period V.....	Tues., Nov. 1 - Wed., Nov. 30, 1983
Period VI.....	Thurs., Dec. 1 - Sat., Dec. 31, 1983
Period VII.....	Sun., Jan. 1 - Tues., Jan. 31, 1984
Period VIII.....	Wed., Feb. 1 - Wed., Feb. 28, 1984
Period IX.....	Thurs., March 1 - Sat., March 31, 1984
Period X.....	Sun., April 1 - Mon., April 30, 1984
Period XI.....	Tues., May 1 - Thurs., May 31, 1984
Labor Day Recess.....	Mon., Sept. 5, 1983
Residency Matching Day.....	Wed., March 14, 1984
Commencement.....	Sun., June 3, 1984

Foreword

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 1879, another medical college, the Michigan College of Medicine, opened in Detroit. The two colleges soon united to become the Detroit College of Medicine. In 1919, the 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 a period of unparalleled growth and the creation of a totally new 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 256 students, making the Wayne State University School of Medicine one of the largest medical schools in the country.

The new nine-story University Clinics and the Detroit Receiving Hospital have been completed recently and serve as major teaching and clinical centers for the School of Medicine.

The first physicians were graduated from the Detroit Medical College in 1870. In 1875, the Alumni Association was founded, with Dr. Theodore McGraw as president. The first secretary was Dr. Leartus Connor, who was also active in the organization of the Association of American Medical Colleges in 1876. Through the years, the Alumni Association has maintained an active interest in the School of Medicine including a scholarship and loan program.

ACADEMIC PROGRAMS

Educational Goals

Our goals are for all graduates to be:

- knowledgeable in the basic science and clinical aspects of medicine and in the application of these principles;
- committed to the pursuit of excellence in all of their professional activities;
- well-grounded in the humanistic aspects of health care;
- well-prepared for future training for careers in patient care, health service, teaching or research;
- skilled in self-education;
- committed to continuing education;
- aware of their limitations throughout their careers;
- equipped to understand future developments and to be effective problem-solvers in patient care, health care delivery systems, and other fields of medicine.

Educational Program

The undergraduate program in medicine consists of a core curriculum in normal and abnormal human biology followed by clerkships in clinical medicine and a year of elective experiences. In each of the first two years, the curriculum is organized on an organ system basis.

In the first year through an interdisciplinary study of anatomy, histology, embryology, physiology, and biochemistry, students learn about the normal structure and function of the human body. In addition, there is a family and community medicine unit designed to introduce the student to some economic, social and political aspects of health care delivery.

In the second year through an interdisciplinary study of pathology, immunology and microbiology, and pharmacology, students learn about the effects of disease processes on structure and function, and the principles of drug action and therapy. Clinicians as well as basic scientists serve as lecturers. In addition, training is offered in psychiatry, family medicine, biostatistics, epidemiology, human values and ethics, physical diagnosis, and clinical interviewing.

The third year curriculum consists of clerkships providing in-patient and out-patient clinical education and training in internal medicine, surgery, gynecology/obstetrics, pediatrics, the neurosciences, psychiatry, and family medicine.

The fourth year is entirely an elective year. Within certain guidelines (for example, five of the eight elective periods must be spent in hospitals with a major Wayne State University affiliation), students can select from over 200 electives in 23 disciplines. In addition to the many programs offered by Wayne University, students can take advantage of approved elective programs offered by other institutions.

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 intend 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, election of an 'away course' at one of the cooperating schools requires approval of both the parent and host institutions. Enrollment, matriculation and fee payments continue without alteration at the parent institution; however, students are responsible for all travel and living expenses incurred during the 'away' elective. Additional information can be obtained from Mrs. Sandra Driscoll, Recorder, Office of the Registrar.

GRADUATE PROGRAMS

Director: George E. Dambach, Ph.D.

Advanced study programs leading to Ph.D. and M.S. degrees are available in the School of Medicine. The primary purpose is to provide an opportunity for graduate training in preparation for careers in research in the medical and health-related sciences.

The graduate student enters a community of scholars and is expected to become acquainted with the development of a main area of study and its relationship to other pursuits. Students are expected to become independent and self-directed, to acquire useful perspectives on the meaning and limitations of exact science, and to maintain a balance between practicality and abstract intellectual activity. They are expected to draw from and add to the wealth of accumulated knowledge in their chosen discipline. Graduate students work closely with faculty advisers who help plan course schedules and research programs.

Doctor of Philosophy

Programs leading to the Doctor of Philosophy degree in the basic medical sciences are under the jurisdiction of the Graduate School of the University. Majors within the School of Medicine are available in the following academic areas: anatomy, biochemistry, immunology and microbiology, pathology, pharmacology and physiology. The School is a major participant in the interdisciplinary Ph.D. program in neurosciences. Graduate courses offered in the School of Medicine are listed by departments in the following pages. General requirements for the Doctor of Philosophy degree are stated in the Graduate School section of this bulletin. Individual departments may have supplementary requirements; these 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 students an opportunity to acquire knowledge and expertise in both research and clinical medicine. The usual medical curriculum does not afford the medical student an opportunity to acquire the basic information and training necessary for a competent research investigator. By combining and interrelating the Doctor of Medicine and Doctor of Philosophy programs, the objectives can be accomplished effectively and in a significantly shorter time than is possible by two separate degree programs. Such a program will prepare the student to assume investigative leadership in medical schools and in institutes for medical research.

This program is reasonably flexible so that it can be adapted to best suit the student's discipline, needs and objectives.

— Approved Programs

The combined M.D.-Ph.D. degree program is available in six basic medical science departments: anatomy, biochemistry, immunology and microbiology, pathology, pharmacology and physiology. Special arrangements also may be made for interdisciplinary studies between the School of Medicine and disciplines in other schools and colleges at Wayne State University.

— Degree Requirements

The requirements for the combined M.D.-Ph.D. degrees conform with those established for the separate degrees by the School of Medicine, the Graduate School, and the individual departments involved. A student who has shown outstanding academic excellence may be considered for the combined degree program when he/she has been admitted to the School of Medicine and has satisfied the requirements for admission into the Graduate School. Admission to the combined M.D.-Ph.D. program *must* be approved by the appropriate graduate department of the Medical School, and by the Deans of the School of Medicine and of the Graduate School.

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, biochemistry, community health service, immunology and microbiology, pathology, pharmacology, physiology, psychiatry and radiology. Graduate courses available in these disciplines are listed by department in the following pages. A minimum of thirty credits are required for the master's degree. General requirements for the Master of Science degree are listed in the Graduate School section of this bulletin. Specific degree requirements are given in separate brochures, which are available from the individual departments.

Financial Support for Graduate Study

Graduate assistantships, fellowships and tuition scholarships are available for qualified students admitted to the various graduate programs. All forms of support are limited in number and are awarded on a competitive basis. However, we strive to generate support for all qualified doctoral students.

Application

Application forms may be obtained from the academic department of the applicant's specific area of interest and from the Graduate Office, Wayne State University School of Medicine, 1206 Scott Hall.

More detailed information concerning the graduate programs (M.S., Ph.D., combined M.D.-Ph.D.) listed above may be obtained from the department of the applicant's specific area of interest or from: Dr. George E. Dambach, Director of Graduate Programs, Wayne State University School of Medicine, 540 East Canfield, Detroit, Michigan 48201.

CONTINUING MEDICAL EDUCATION

Director: Gail Bank, Ph.D.

The Continuing Medical Education Program at Wayne State University School of Medicine is accredited by the Accreditation Council for Continuing Medical Education. 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 education needs of practicing physicians and the medical delivery system. The program is concerned with addressing the continuing medical education needs of more than half of Michigan's physicians residing in the tri-county area of metropolitan Detroit, as well as 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 on behalf of the patients they serve.

Physicians from many states attend the wide array of special conferences, workshops and symposia presented each year that reflect new discoveries and changes in interests and needs in medicine. Some programs presented on an annual or other regular basis include: Family Practice Review, Ophthalmology: Basic and Clinical Review, P.I.C.E.P. (Postgraduate Institute for Career Emergency Physicians), Medicolegal Investigation of Death, Thyroid Workshop, Rheumatology Workshop, Surgery of the Hand, Regional Anesthesia, Practical Otolaryngology, and Urology Outing.

In addition to these one-day to week-long programs, offerings of short duration are also available. Physicians are encouraged to participate in the various departmental workshops, teaching rounds and grand rounds that meet their interests or needs.

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 these needs through continuing medical education. Inquiries may be directed to the Division for information about programs on specific subjects or programs for specific medical specialties.

AFFILIATED HOSPITALS RESIDENT PHYSICIAN PROGRAM

Graduate Medical Education

Coordinator: Grovenor N. Grimes, B.A.

Wayne State University and five Detroit Medical Center hospitals (Children's, Detroit Receiving, 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 Hospitals 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: emergency medicine, 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, as well as in dermatology, emergency medicine, neurology, neurosurgery, ophthalmology, oral surgery, orthopedics, otolaryngology, plastic surgery, radiation oncology, 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 training.

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 Medicine.

ADMISSION

Director: Charles C. Vincent, M.D.

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, medically underserved areas, and students who bring diversified interests and abilities to the medical profession. 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 human 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 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. 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. No student who has at any time requested to withdraw for any reason from a medical school in which he/she 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.
5. 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, may be admitted with advanced standing to the second and third years only, subject to the number of vacancies which may exist in the second and third years. Application for advanced standing should be made not later than July 15.

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/she seeks entrance and must have completed courses equivalent to those required of that class.
2. The applicant must file a completed application form and must present official transcripts from each school attended showing that he/she meets, in full, the entrance requirements for admission to this School.
3. The applicant must be a student in good standing at the medical or osteopathic school from which he/she is withdrawing. A letter of support from the dean of that school is required.
4. The applicant must take such examinations in the courses for which he/she seeks credit as may be required by the faculty of the School of Medicine (either the National Board Part I or the Medical Science Knowledge Profile exam).

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/her degree.

FEES

All fees are payable in advance. Listed below are the fees in effect as of the publication 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	\$4330.00	\$8630.00

An initial tuition payment of \$1100.00 for residents and \$2200.00 for nonresidents must be made at the time of registration. The balance is to be paid in seven monthly installments. A \$25.00 late fee will be assessed on all payments made after the 15th of each month.

A non-refundable late registration fee of \$25.00 is charged for any registration after the close of the regular registration period; the fee is \$50.00 for registrations more than fourteen days late.

Cancellation of Registration and Refunds

If a student finds it necessary to withdraw from the University, he/she should notify the Office of Student Affairs, Wayne State University School of Medicine, in writing. If notice of withdrawal 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

The total four-year cost for books, supplies and equipment is approximately \$2100.

Books and supplies: The costs are approximately \$400 for each of the first two years, and \$350 and \$250, respectively, for the subsequent two years. 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 \$110.00 a year is charged. Each student must provide his/her own dissecting instruments and diagnostic instruments. Instrument costs are typically about \$275, \$150, and \$75, incurred during the first three years of study.

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 10.

* \$50.00 is withheld only if the student withdraws from all courses.

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.

Matriculation and Promotion

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. 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/her 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 Chairpersons, by the President of that council with its advice and consent; and 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.

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 Chairperson. 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/her 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. Dismissal can be based upon these factors, independent of the quality of the student's academic performance.

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:

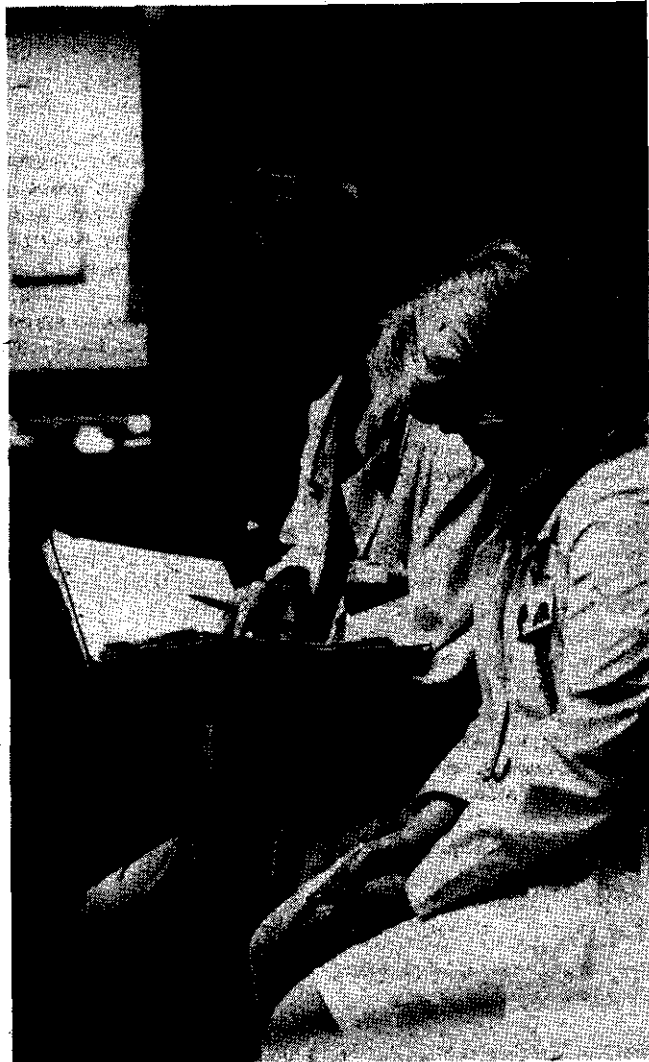
1. He/she must be at least 21 years of age and must exhibit good moral character.
2. He/she must have satisfactorily completed all the academic requirements established by the School.
3. He/she must have paid all fees in full, and have all holds released.

SERVICES

Health Service: Medical students have access to the Wayne State University Health Service.

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 academic difficulty.



MEDICAL SCHOOL DIVISIONS

Conjoint Teaching Services

Office: 2352 Scott Hall

Director: Richard L. Wells, B.S.

This unit coordinates the laboratory teaching programs 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

Professor

Richard E. Gallagher

Associate Professors

Martin J. Hogan, Frank M. Koen, Norval C. Scott

Associate Professor, Full-Time Affiliate

Thomas N. Broder

Assistant Professors

Carolyn Norris-Baker, Richard M. Frankel, John P. Harm

Adjunct Professor

Gail I. Bank (Continuing Medical Education)

Computer Applications

Joseph Sokolov

Examination Services

Patricia A. Barrett

Professional Staff

Maxine Baker, Leon Flack, Evan Ralyea, Joy Schermer, Monte Schloss

The Division of Educational Services and Research consists of an interdisciplinary faculty concerned with teaching, research and service activities which strive to improve the quality and effectiveness of various aspects of the medical training and health care delivery processes. The members of the division represent a wide spectrum of expertise, including ecological-behavioral theory and research, human adaptation theory and research, videotape analysis, research design, measurement, instructional design and computer applications to instruction, research and information management. The Division works in close cooperation with individual faculty members, committees and academic departments of the Medical School to meet this objective.

— Education Development Functions

Within the scope of service activities, the Division provides assistance in the design and development of instructional materials, as well as the broader aspect of curriculum planning and implementation. The Division faculty also serves to encourage and implement systematic efforts to develop and improve methods and procedures for measuring student/physician learning, including assessment of the various dimensions of clinical performance and quality of care.

— Research

The research thrust of the department has focused on the investigation of: (1) the behavior of health care providers and consumers, (2) the environments in which these behaviors are situated, and (3) an exploration of the relationship between the nature of medical training and quality of care.

— 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 either college.

Information concerning the availability of Division resources, programs, or assistance can be obtained at the above sources.

Medical Communication

Office: 1369 Scott Hall
Director: Henry A. Leung

The Division of Medical Communication is responsible for 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.

Medical Photography
Supervisor: John Levis; 1333 Scott Hall

This unit routinely handles the copying of charts, graphs and other illustrated material for publication and projection slides for teaching and other medical meetings; copying of x-rays for teaching and publication; and the photography of research, gross anatomical specimens, operation room procedures, tissue slides, and public relations material.

Medical Illustration
Supervisor: Bill Loechel; 1335 Scott Hall

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.

Graphic Design

Supervisor: Len Deneweth; 1368 Scott Hall

The Graphic Design unit is responsible for art work including: exhibits, publications, illustrative material for motion picture films, television, video tapes, and slide/sound self-instruction modules, and graphs, charts, signs and posters.

Media Production

Supervisor: David Neumana; 1369 Scott Hall

The Media Production unit is involved with all aspects in the development and production of instructional and informational media from the creative development of audio-visual script ideas through duplication and distribution of audio-visual materials. It is active in both full-scale professional motion picture and television production for such varied purposes as documenting research and teaching medical techniques, and it also utilizes a broad range of other media (such as slide-sound, microfiche, and audio tape) that may be most appropriate to the objectives and budget of any given project. The services of this unit include free consultation in the initial development of script ideas as well as the full development of scripts for eventual production. These resources are available not only to Medical Center faculty but to all professionals involved in medical teaching or health care delivery.

Media Distribution and Learning Resources

Supervisor: Wayne Cox; 1367 Scott Hall

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 lecture halls, the M-D labs, study carrels; and various conference rooms. Three 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

Janet Zimmerman, Cataloger
Andrea Sperbaum, Serials Librarian
Theodora Bolesta, Data Coordinator, KOMRMLP
Anaclear Evans, Technical Services Librarian
Ruth Taylor, Associate Medical Librarian
Sahndra Kassad, Circulation Assistant
Patricia Bristor, Acquisitions Librarian
Faith Van Toll, Associate Director, KOMRMLP
James Shedlock, Documentation Delivery Librarian
Martha Aitchison, Document Delivery Assistant

The School of Medicine Library is located in the Vera Parrish Shiffman Medical Library building. The structure houses the University Library's medical collections consisting of some 150,000 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 inter-library 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 thirteen 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 to all qualified users throughout the region.

University Relations

Director: 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 semi-annual magazine for alumni, faculty, staff and friends; a monthly newsletter for faculty; 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 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 spouses 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 ninth 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 Allocations 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

Chairperson: Harry Maisel

Professors

Maurice H. Bernstein, Bent Boving, Morris Goodman, Gabriel W. Lasker, Harry Maisel, David B. Meyer, Nicholas J. Mizeres

Associate Professors

Jose R. Alcala, Mihir Bagchi, William J. Crossland, Thomas V. Getchell, Harry Goshgarian, James C. Hazlett, Linda D. Hazlett, Mauricio A. Lande, J. A. Mitchell, Roberta G. Pourcho, Jose A. Rafols, Martha K. Rodin, Alejo E. Romero-Herrera, Robert P. Skoff

Adjunct Associate Professors

Warren Schneider, Arthur Hamparian, Eugene Plous

Assistant Professors

Edward V. Famiglietti, Jr., Jessie I. Wood

Adjunct Assistant Professors

Renee Laya Boving, Lacey Walke

Associates

Archie W. Bedell, Family Medicine; Barry A. Bogin, Anthropology; David S. Carlson, Center for Human Growth, University of Michigan; Clifford V. Harding, Ophthalmology; Raymond L. Henry, Physiology; Eugene V. Perrin, Pathology; Gino G. Saliccioli, Orthopedic Surgery; Mark L. Weiss, Anthropology

The basic aims of the Department are to provide an understanding of the structural features of the human body with emphasis on functional correlates at all levels from gross anatomical relationships to details of fine structure.

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 future members of the academic disciplines of the anatomical sciences. Research training is also offered to holders of first professional degrees (e.g., M.D., D.D.S., D.V.M.).

Courses offered in the Department include gross, microscopic, developmental and neuro-anatomy. Active research programs are conducted in cell biology, molecular evolution, developmental and reproductive biology and neurosciences. 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

Chairperson: Eli M. Brown

Professors

Eli M. Brown, Gianfranco Dal Santo

Adjunct Professor

Roy Aston

Associate Professor

Gerhard C. Endler

Associate Professors, Full-Time Affiliate

Gaylord Alexander, Bernard G. Sivak

Assistant Professor

Orlando Sison

Assistant Professors, Full-Time Affiliate

E. G. Bartholomew, Samir F. Fuleihan, Marvin R. Jewell, Frances E. Noe, Michael K. Rosenberg, Alfred Rubenstein, M. E. Wenokur, Grant Withey

Clinical Assistant Professors

Charles Berman, Eugene Boyle, John Calwell, Willard Holt, Jr., David Simpson, Raymond D. Sphire, Jack A. Young

Instructor

Carl L. Holsey

Instructors, Full-Time Affiliate

Gerald Berlin, Yale S. Falick, A. Michael Prus, Renato S. Roxas, Sharon Marie Schafer, Sidney Soifer, Selma Velilla

Clinical Instructors

John Ammon, Piyush Desai, Raniero DiPiero, Rolf W. Donath, Robert Goldberger, Peregrino Guillen, Richard J. Jones, Kwonsoo Kim, Richard W. Lingenfelter

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 chairperson, at some other institution.

The major objectives of an elective in anesthesiology include the acquisition of skills and knowledge related to: (1) air-way 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: 5E University Health Center

Chairperson: William F. Rintelmann

Professors

Doris V. Allen, George E. Lynn, William F. Rintelmann

Associate Professor

Dale O. Robinson

Assistant Professor

Anthony A. Muraski

Adjunct Associate Professor

Donald W. Nielsen

Adjunct Assistant Professors

Frances E. Eldis, Ronald W. Ford, Leon Stein, Robert G. Turner

Instructor

Gilmour M. Peters

Audiology is the study of the normal and impaired auditory system. This field is concerned with how individuals hear and how impaired hearing affects communication, development and social adjustment. 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 major interests of audiologists. Majors leading to the Master of Arts and the Doctor of Philosophy are available. The Master of Arts program in audiology prepares the student for the professional responsibilities of an audiologist in applied settings. The doctoral program prepares the student for a career in university teaching and research involving the normal and/or impaired auditory system.

The Faculty is involved in teaching programs which include contact with medical students and residents of various departments. Some formal courses are designed for students preparing to teach deaf and hard-of-hearing and for the speech and hearing clinician. The department offers wide clinical experience under the direct supervision of the faculty and staff in the University Health Center, Harper-Grace Hospitals, Children's Hospital, Veterans Administration Medical Center, Metropolitan Hospital, Windsor Senior Citizens Centre, and private physicians' offices.

The Department of Audiology functions in close cooperation with the Departments of Neurology, Otolaryngology, Psychology, Speech Communication and Theatre, Mechanical Engineering and the Divisions of Teacher Education and Theoretical and Behavioral Foundations. Graduate work leading to the master's and doctoral degrees is offered in cooperation with several of the above departments.

BIOCHEMISTRY

Office: 4374 Scott Hall.

Chairperson: Ray K. Brown

Professors

Sam C. Brooks, Ray K. Brown, C. P. Lee, James M. Orten (Emeritus), Demetrius Tsernoglou, Serge N. Vinogradov

Associate Professors

Joseph C. Bagshaw, Danica Dabich, Marilyn S. Doscher, David R. Evans, Richard A. Hudson, Robert M. Johnson, James J. Lightbody, Leonard I. Malkin, Robert A. Mitchell, Charles J. Parker, Jr.

Assistant Professors

Brian F. Edwards, Richard B. Needleman

Assistant Professors, Full-Time Affiliates

Barkley W. Butler, Jurij Rozhin

Adjunct Associate Professor

Joseph D. Shore

Adjunct Assistant Professor

Raymond E. Karcher

Associates

Joyce Benjamins (Neurology), Yoav Ben-Yoseph (Pediatrics), Ta-hsu Chou (Oncology), Dennis Drescher (Ophthalmology), Robert L. Millette (Immunology and Microbiology), Vishwanath M. Sardesai (General Surgery), Frank N. Syner (Gynecology/Obstetrics), Roger Thibert (Pathology), Edward Yurewicz (Gynecology/Obstetrics), 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 degree in Biochemistry with specialization in clinical chemistry and an M.D.-Ph.D. program with major in biochemistry are also available.

Admission: Students applying for admission must have an undergraduate degree in chemistry, biology or physics (although students with other majors may apply, these subject areas are preferred); a minimum honor point average of 3.0 for the Ph.D. program and 2.5 for the master's program; and an interview with the

Graduate Officer or designated representative. 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 satisfactory performance on the standardized TOEFL English proficiency examination.

Degree Requirements: Applicants for the master's degree must take thirty credits of which at least eight will normally be in master's research and thesis. All master's degree students must take Biochemistry 701-703.

Applicants for the Doctor of Philosophy degree must complete ninety credits, including at least thirty in research and dissertation, eight to ten in a minor and fifty to fifty-four credits distributed between the major and required cognate courses. To fulfill major requirements, students must take Biochemistry 701-703, 705, 764 and four credits in BCH 789. The resident requirement of one year is normally met by the completion of ten credits of work in each of two successive semesters. At least thirty credits of graduate work must be taken at the University.

Each student must arrange a program in an area of minor concentration with a representative of the department in which he/she 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, biology and computer science.



COMMUNITY MEDICINE

Office: 129 Health Sciences Building

Chairperson: Theodore Goldberg

Professor

Theodore Goldberg

Adjunct Professor

Solomon J. Axelrod

Associate Professors

David C. Nolan, Allen Reed

Adjunct Associate Professors

George E. Cartmill, Jr., John Ingel, Julien Priver, Norbert Reinstein

Assistant Professors

T. Ann Gorton, Michael J. Long, Eleanor Nishiura

Adjunct Assistant Professors

Nathaniel Brooks, Terence E. Carroll, Andrew W. Dahl, Bettye S. Elkins, J. Kay Felt, Symond R. Gottlieb, John M. Hill, W. A. Markowicz, J. Douglas Peters, E. M. Rogers, William Rothman, John Waller

Adjunct Instructors

Gerald W. Aldridge, Alma P. A. Chand, James Walworth, Charles Wolfe

Associates

Thomas M. Batchelor, Irving Posner, Judith E. Tintinalli

The Department of Community Medicine is concerned with the study of the distribution and determinants of disease within populations, as well as 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 allows for an interdisciplinary approach to study of the health care system.

The Department also provides elective opportunities for students who wish to concentrate on aspects of community health during their senior elective year. Senior electives also include opportunities to work on epidemiological problems in collaboration with the Detroit Health Department and others, work in health maintenance organizations, study health systems in other countries, study medical-legal problems, and the like.

Graduate Programs

The Department of Community Medicine offers a program leading to the Master of Science degree in Community Health Services. The program's objective is to provide specialized training for individuals of varying backgrounds and experience who intend to work in the health care sector or closely related fields. Course work combines material from several disciplines and students will be expected to complete common-core courses in addition to electives reflecting their particular areas of interest.

Admission: Students will be considered for admission into the Department of Community Medicine in the fall and winter semesters if they meet the requirements of the graduate division of the University and have a strong social science or other relevant undergraduate background, or a strong interest and experience in community health services. In those cases where the applicant does not meet all entrance requirements, deficiencies will have to be made up by additional course-work without credit towards the degree. An honor point average of 3.0 (on a 4.0 scale) will normally be required for unconditional admission. Applicants are required to take the Graduate Record Examination and a minimum combined score of 1000 on the verbal and quantitative sections of this exam is required.

While health-related work experience is not a requirement for admission to the program, individuals with such experience are especially encouraged to apply.

Degree Requirements: Students are expected to meet the requirements for enrollment in graduate degree programs as outlined by the graduate division. Under Plan A the student must complete eighteen credits in core requirements, six credits in electives, and a master's thesis for eight credits. Under Plan C the student must complete eighteen credits in core requirements, eleven credits in electives, and a master's project for three credits.

DERMATOLOGY AND SYPHILOLOGY

Office: 5th Floor, University Clinics Building

Chairperson: Ken Hashimoto

Professors

Donald J. Birmingham, Ken Hashimoto, Hermann Pinkus (Emeritus)

Clinical Professors

Isadore Botvinick, John N. Grekin, Amir H. Mehregan, Coleman Mopper

Associate Professors

Syed L. Husain Hamzavi, Aurel P. Lupulescu, Earl J. Rudner

Clinical Associate Professors

Jules Altman, Thomas A. Chapel, Ralph J. Coskey, Richard F. Elton, Richard J. Ferrara, Harold Plotnick, Robert J. Schoenfeld, Oscar Schwartz, Benjamin Schwimmer, Andrew E. Segal, Renato G. Staricco, James D. Stroud, Harold E. Usndek, Rudolf E. Wilhelm

Assistant Professors

Mohammed Ghaemi, L. Boyd Savoy, Stephen W. Sturman

Clinical Assistant Professors

J. David Ausum, Myron Barlow, John D. Butler, Neldagae Chisa, Alan D. Cohen, Carl J. Cohen, Thomas F. Downham II, Robert P. Fosnaugh, Stanley Greenberg, Martin Hart, Robert P. Heidelberg, John R. King, Lawrence Krugel, Constantin Predeteanu, Homayoon Rahbari, Marvin D. Siegel, Richard H. Smith, Julius Stone, Antoinette Tanay, Jay Victor

Instructor

Abdolvahab Maleki

Clinical Instructors

Martin M. Abbrecht, Stanley Alfred, David Blum, Jon H. Blum, Henry G. Bryan, Stephen I. Field, Michael S. Frank, Joel J. Harris, Larry E. Heath, Sato Jean Kegler, Ronald D. Kerwin, Marvin E. Klein, Sanford Kornwise, Bruce L. Krieger, Edward S. Lerchin, Jolanta E. Malinowski, Antonina Miller, Daisy P. Ramos, Richard S. Schwartz, Everett B. Simmons, Jr., Daniel M. Stewart, Harold R. Wagenberg

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

Chairperson: Joseph W. Hess

Director of Family Practice Residency: Robert J. Toteff

Professors

Joseph W. Hess, Aaron L. Rutledge

Associate Professors

Darwin J. Belden, Sol Leland, Robert J. Toteff

Clinical Associate Professors

Archie W. Bedell, George Mogill, Jack Ryan

Assistant Professors

B. Kay Campbell, Raymond Y. Demers, Kenneth B. Frisof, Hans J. Koek, Lois J. Martindale, Kris Parnicky, William Von Valtier

Clinical Assistant Professors

Donald R. Ballard, Gerald Banish, John M. Battle, Leonard Birndorf, Roy W. Boyer, Eugene J. Cetnar, Miriam S. Daly, Robert D. Danforth, Bernard Dash, George A. Dean, Murray A. Deighton, Thomas J. Ganos, Norman F. Gehringer, Martin J. Gorelick, Edmond J. Gostine, William G. Grannis, Morris Greenberg, Camille Harize, Cecelia F. Hissong, Charles J. Lapp, William C. Larsen, Jack A. Litwin, John W. MacKenzie, Peter F. Nowosielski, Charles W. Oakes, Navalpakkam Rangarhjan, Edward A. Petoskey, Larry J. Sell, Abraham B. Solomon, Jack M. Stack, Thomas A. Tenaglia, Larry G. Thompson, Israel Wiener, Ralph F. Woodbury, Learie N. Yuille, Louis R. Zako

Adjunct Assistant Professor

Elizabeth Prevot

Instructors

Caesar A. Austin, Carolyn Hokanson, Lisa Reimer, Raj K. Sindher, Johnny R. Trotter, Gita K. Vora, Thomas R. Vikander

Clinical Instructors

Vincent B. Adams, Korkut Akan, Joseph Arends, Fred H. Ayers, Arnold M. Berman, Arthur M. Cooper, Mark S. Cramer, Diane A. Culik, Doris E. Dahlstrom, Betty DeLawrence, John A. Geralt, Donald G. Gerard, Christopher D. Goldsby, Jack R. Greenberg, Frederick Grose, Harold Herbst, Samson A. Inwald, Van O. Keeler, John L. Lehtinen, Dennis F. Levin, Barbara F. Mercer, Joanne McKune, Robert C. Orr, Christopher J. Pabian, Bryant W. Pierce, Frank P. Raiford III, Gerald Rakotz, Ronald L. Rhule, Jean Sinkoff, Howard B. Schwartz, Joseph A. Schwartzberg, William D. Sharpe, Duane E. Smith, Francisca S. Soliven, Anthony C. Southall, Amos Taylor III

Adjunct Instructor

Jane R. Thomas

Associates

Richard D. Anslow (Internal Medicine), Martin Atdijan (Internal Medicine), George Blum (Pediatrics), Horace Bradfield (Internal Medicine), John B. Bryan (Internal Medicine), Alberto Cohen (Internal Medicine), Douglas E. Cox (Pediatrics), Robert Cubberley

(Internal Medicine), William Gronemeyer (Pediatrics), Charles G. Jennings (Pediatrics), Cheng-Chong Lee (Internal Medicine), Leon Morris (Internal Medicine), Kenneth Newton (Internal Medicine), 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 coordinates and participates in a year-long curricular unit designed to introduce medical students to the need for more family physicians throughout Michigan and nationally, to some of the basic concepts and clinical skills of Family Medicine and other medical disciplines and to some of the moral, ethical and organizational issues which are of contemporary concern in the national evolution of a responsive health care delivery system designed to meet the needs of society.

In the *second year*, the Department continues orientation toward basic concerns of Family Medicine including the ambulatory approach to common clinical problems, health promotion, patient record-keeping methods and emphasis on psycho-social as well as biological aspects of patient care. Faculty of the Department also participate in the Introduction to Clinical Medicine course designed to further refine the students' ability to take an appropriate history, perform a physical examination and apply information thus obtained to clinical diagnosis.

In the *third year*, the Department administers a required four-week rotation in Family Medicine. During this rotation, students have the opportunity for a preceptorship in which they spend the rotation with a family physician engaged in full-time community practice. Students may request placements from a list of over 200 practicing physicians throughout the State, including the Upper and Lower Peninsulas and rural, suburban and urban practice settings. An alternative option to the preceptorship is a four-week Family Medicine clerkship. The Year III clerkships are specially organized schedules of clinical educational activities based in Family Practice Residency Training Programs in the Detroit area, one of which is located in the Department's home base in the University Health Center in the Detroit Medical Center. Other placements are available in affiliated community hospital sponsored Family Practice Residency Programs in Detroit and adjacent suburbs. Formal examination and evaluation procedures are incorporated into this rotation.

In the *fourth year*, the Department offers a number of electives, including additional preceptorship experience with practicing family physicians, specially designed programs in Family Practice Residencies and other options which deal with health care delivery and primary care. An adult general medicine inpatient rotation is offered, which satisfies the 'at home' elective general medicine requirement.

Graduate Education

The Department, in cooperation with Harper-Grace Hospitals and other Detroit Medical Center institutions, sponsors a three year accredited Family Practice Residency Program. The ambulatory Family Practice experience of the Medical Center is in the Family Practice Center of the University Health Center in the Detroit Medical Center. Hospital rotations are arranged through a network of seven cooperating community hospitals in the Detroit area. Additional units of the residency are located in northwest Detroit and Troy.

Postgraduate Education

The Department plays an active role in providing continuing education for family physicians in practice. Three to five day clinical update conferences are presented each year in addition to weekly and monthly Departmental conferences approved for continuing medical education credit to which practicing physicians are invited.

Community Service

In order to carry out clinical education functions, faculty and residents of the Department offer medical care to the community through the Family Practice Centers and related institutions. Patient care functions are performed in collaboration with other health professionals such as clinical nurse specialists, clinical pharmacists, social workers and their students. These services are available to individuals and families of all socioeconomic levels in the community, including students, staff and faculty of the University. Admissions for inpatient care are to Medical Center or other University affiliated hospitals.

Research

Departmental research interests include studies designed to improve the delivery of primary health services at the individual, family and community level and to provide preventive health services which recognize the important role of the family and community in maintaining health and coping with illness.



GYNECOLOGY AND OBSTETRICS

Office: 120 Mott Center

Chairperson: T. N. Evans

Professors

Samuel J. Behrman, Bent G. Boving, T. N. Evans, E. S. E. Hafez, Harold C. Mack (Emeritus), K. S. Moghissi, Harry M. Nelson (Emeritus), A. I. Sherman, Julian P. Smith, Joan C. Stryker

Clinical Professor

C. Paul Hodgkinson (Emeritus)

Associate Professors

Bernard Mandelbaum, Federico G. Mariona, A. G. Sacco, C. Robert Stanhope, Frank N. Syner, John Y. Teshima, Charles C. Vincent

Associate Professor, Full-Time Affiliate

R. Ralph Margulis

Clinical Associate Professors

William S. Floyd, Leonard P. Heath, William B. Kirtland, Anthony T. Salvaggio, Arthur G. Seski, Lee B. Stevenson

Assistant Professors

David Magyar, M. A. Poland, J. K. Williams, Edward C. Yurewicz

Assistant Professors, Full-Time Affiliate

Milton H. Goldrath, Don R. Krohn

Clinical Assistant Professors

William M. Chavis, S. Leonard Cohn, Julius V. Combs, Panfilo C. DiLoreto, Robert W. Dustin, Arthur W. Eckhouse, David Feld, Sami F. Guindi, G. Peter Halekas, Stanislaw E. Jaszczak, William H. Jevons, James Kornmesser, Morton R. Lazar, Harvey D. Lynn, Henry W. Maicki, Cornelius A. Navori, Philip S. Peven, Addison E. Prince, Michael Prysak, Joseph W. Stern, John A. Tulloch, Robert G. Walkowiak, James N. Wardell, Irvin A. Wilner, Joseph J. Woods, C. H. Wright

Instructor

Muriel J. Espy

Clinical Instructors

Mohamed A. Ariani, William G. Bentley, Allen Berlin, Nancy R. Beyer, Donald Blitz, Mostafa Bonakdar, Edward Cashman, Harry L. Doerr, Thaddeus B. Gaillard, Cecil R. Jonas, James Labes, David I. Lipschutz, John Malone, Donald D. Masse, Anthony Nehra, Eugene Otlewski, Harold Rosen, Albert Rosenthal, Michael S. Salesin, Franklyn Seabrooks, Lorraine A. Sievers, Eugene A. Snider, Joseph Watts, Seymour Ziegelman

Part-Time Faculty

Associate Professor

Lawrence P. Tourkow

Assistant Professors

Stanislaw Jaszczak, Arthur G. Seski, Bohdan Zarewych

Associates

Robert B. Leach (Internal Medicine), Charles Lucas (Internal Medicine), Kazutoshi Mayeda (Biology)

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 eight affiliated hospitals—Beaumont, Detroit Receiving, Harper-Grace, Hutzel, Oakwood, Providence, St. John's and Sinai. Seminars and research opportunities related to human reproduction, oncology and gynecologic endocrinology are available during the clerkship and 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

Chairperson: Noel R. Rose

Deputy Chairperson: Richard S. Berk

Professors

Richard S. Berk, Dov L. Boros, Dominic L. DeGuisti (Emeritus), Charles D. Jeffries, Yi-chi M. Kong, Myron A. Leon, Seymour Levine, Noel R. Rose, Robert H. Swanborg, Lawrence M. Weiner

Adjunct Professor

M. D. Poulik

Associate Professors

William J. Brown, B. K. Choe, Maurice J. Lefford, Stephen P. Lerman, Robert L. Millette, Sunil Palchaudhuri, Helene C. Rauch, V. Fay Righthand, Charles D. Sterling, Roy S. Sundick

Adjunct Associate Professor

Pierluigi E. Bigazzi

Assistant Professors

Kirk W. Beisel, Lee Carrick, Jr., Lily A. Jones, M. Kenneth Morrison

Adjunct Assistant Professors

Larry D. Bacon, Paul Bland, Heiner Frost, Alvaro Giraldo, Frank Gnabasi, Rollin H. Heinzerling, John J. Jennings, Brenda W. McCurdy, Joseph Menninger, Nicholas Radoiu, Al Sanker, Howard R. Toben, Mary P. Whitcomb

Associates

Flossie Cohen (Pediatrics), Peter Ecklund (Pediatrics), William Hoffman (Pediatrics), Joseph Kaplan (Pediatrics), James L. Lightbody (Biochemistry), Barbara J. McArthur (Nursing), Ward Peterson (Child Research Center), Jerry C. Rosenberg (Surgery), Anthony G. Sacco (Gynecology and Obstetrics)

In its teaching programs, the Department of Immunology and Microbiology strives to give future physicians an understanding of infectious agents and their role in the disease processes, so that a rapid diagnosis can be made and proper therapy instituted. Immune mechanisms and concepts are stressed to develop a broad base of knowledge. The aim is to provide 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.

Graduate Programs

The department offers graduate programs leading to the Master of Science and Doctor of Philosophy degrees in immunology and microbiology in the areas of: 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. Helene Rauch.

INTERNAL MEDICINE

Office: 2 Webber South—Harper-Grace Hospitals

Acting Chairperson: David M. Bull

Professors

Arnold R. Axelrod, Michael J. Brennan, Carter R. Bishop, Harries Boudoulas, William A. Briggs, David M. Bull, Muir Clapper, Margo Cohen, Alfred Eichenholz, Elmore C. Vonder Heide (Emeritus), Franklin Hull, A. Martin Lerner, Benjamin Lewis, Charles Lucas, Patricia Lynne-Davies, Robert Mack, Felix Fernandez-Madrid, Franklin D. McDonald, Mark R. McQuiggan (Emeritus), Lawrence Power, Ananda Prasad, A. Hazen Price (Emeritus), Pritpal Puri, Frederick Talmers, Arnold M. Weissler

Clinical Professors

Walter Anderson, A. Robert Arnstein, Abraham Becker, Grosvenor Bissell, Nathan Brooks, George Fisher, Sidney Friedlaender, Don P. Jones, Benjamin Juliar, Jack M. Kaufman, Hyman Mellen, Daniel W. Myers, Arnold Shafer, Nelson Taylor

Associate Professors

Ali Abbasi, Nandaal Bagchi, Jeffrey Band, Kenneth Bergsman, Pravit Cadnapaphornchai, Richard Carlson, Ralph Cushing, Sunilendu Ganguly, Jose Granda, Subhash Khullar, Daniel Leb, Charles McEwen, Milagros Reyes, Melvin Rubenfire, M. Saadi Taher, Liborio Tranchida, Waldemar Wajszczuk, Francis Wilson

Clinical Associate Professors

Richard D. Anslow, Howard Appelman, Thomas Batchelor, John Bielawski, Robert Black, Richard Connelly, Ralph Cooper, Robert Douglass, C. Rupert Edwards, I. Donald Fagin, Eugene Gelzayd, Abraham Grant, Robert Hamburg, Glen Hiller, Homer Howes, Samuel Indenbaum, Henry Kaine, Sander Klein, G. Krishna Kumar, Carl B. Lauter, Stanley Levy, Paul Mattinan, Richard McCaughey, William McDonald, William McIntyre, William Morse, Lloyd Paul, Marjorie Peebles-Meyers, Thomas Petz, William Reveno, Arthur Rose, Herbert Rosenbaum, Everett Rottenberg, John R. Schneider, Manuel Sklar, Marcus Sugarman, Ignatios Voudoukis, Freeman Wilner, Clyde Wu, Irving Young, Eldred Zobl

Assistant Professors

Daoud K. Abu-Hamdan, Oscar Ballester, Howard Beckman, Surjit Bhasin, Changiz Bidari, Oscar Bigman, Paul Bland, Nicholas Bondar, Keith Brady, Robert Burack, Clement Chu, Lawrence Crane, Steven Crane, Sudhir Desai, Murray Ehrinpreis, Suresh Enjeti, Marcia Fowler, Robert Frank, Yogendra Goel, Nicholas Kerin, Riad M. Khatib, Vithal Kinhal, Herman Klein, Donald Levine, Stephanie Lucas, Sudesh Mahajan, Stephen Migdal, B. F. Muller, Jesus Ortega, Chris Palacas, I. Shah-Taher Reddy, R. Stewart Robertson, Subhash Sabharwal, Donald Salberg, Muhammad Shurafa, Michael Simon, Young Ho Sohn, Enrique Urdanivia, James Warth, Maria Warth, Joel Weinstock, Paul Wemig, Basil Williams

Clinical Assistant Professors

Seymour Adelson, Sidney Adler, Leonard Alexander, Edward Alpert, Charles Artinian, Harry Balberor, Matthew Balcerski, Patricia Ball, E. Martin Barbour, Max Beitman, Gergory Berger, Gilbert Berman, Ratilal Bhakta, Robert Birk, Oswald Bostic, Horace Bradfield, James Brown, Jeffrey M. Bruner, Constantine Cerkez, Douglas Chandler, Raymond Christensen, Alberto Cohen, Robert Cutler, Lingaroddy

Devireddy, Walter DiGiulio, Wolf Duvernoy, Howard Dworkin, Reginald Ernst, Michael Federman, Meryl Fenton, Michael Freeman, Alexander Friedlaender, Emanuel Frisch, Gilbert Galens, James Gallagher, Robert Gerisch, William Gibson, Donovan Givens, Howard Goldberg, Herbert Goldstein, John Graham, Henry Green, Julius Greenberg, Robert Griffin, Subhash C. Gulati, Meyer Gutterman, James Hallen, Harcourt Harris, Michael Harris, Fred Henderson, Hugh Henderson, Raymond Henkin, Colton M. Hutchins, David Jacobs, George Kadian, Sheldon Kantor, Gregory P. Karris, Jack H. Kaufman, Sherman Kay, Rachel Keith, Urmilla Khilani, Arthur Klass, Herman Klein, Michael Kozonis, Walter Kujawski, Kamalash Lahiri, Robert Leach, Cheng-Chong Lee, Hahn J. Lee, David Leichtman, Lyla Leipzig, Nicholas Lekas, Gerald Levinson, Stephen Levy, Leonard Linkner, Berton London, Gerald Loomus, Luis Maas, Ivan Mader, Robert Malone, Leslie Mandel, Walter Martin, Thomas McBryan, George McKeever, Donald Meier, Harry Meisner, Leonard Melander, Lawrence Mendelsohn, John Moynihan, Hector Mulero, Ian Murray, Kurt H. Neumann, Kenneth Newton, J. Scott Nystrom, Donald Overy, Louis Pollens, Alvin E. Price (Emeritus), Sidney Prystowsky, Nicholas Radiou, Abner Ragins, Mohammed Razzaque, Joseph Rinaldo, George Ritter, Leonard J. Rosenthal, Milton Rueger, Richard Ruel, Said H. Saie, Hershel Sandberg, Vinod B. Sanghi, Leonard Schreier, Paul S. Seifert, Abulkamal K. Shamsuddin, Howard Shapiro, Jack Shartsis, Clayton Shors, Richard Sills, William Sills, Andrew Smith, Allen Soble, Thomas Stock, Sheldon Stoffer, John Stone, Komol Surakomol, Leon Thomas, Rachel Turner, Lyle D. Victor, Donald Visscher, Floyd Walter, Irving Warren, Kenneth Weinberger, Richard Wetzel, Steven Widlansky, Seymour K. Wilhelm, Andrew Wilson, Stanley B. Wolfe, Jose Yanez, Walter Zimmerman

Instructors

Lavoisier J. Cardozo, Steven Gellman, Lawrence Lewkow, Carl Liapcheff, Silas Norman, Lazarus C. Reed, Jr.

Clinical Instructors

Roderic Abbott, Fazal Ahmad, Elsa Alcantara, Syed Amouzegar, Robert Barron, Sidney Baskin, Thomas Billingslea, Alvin L. Bowles, Sr., John Bryan, John Burger, Samuel Castillo, Allan Chernick, Robert Cubberly, William Curtiss, Allan Dqbznyiak, Kenneth J. Dziuba, Charles Ebner, Michael Eidelman, Eldon Erickson, Gregorio Ferrer, Elliot N. Fraiberg, Pedro Franco, Sherwood Friedman, Richard Gause, James Gilreath, Harold Ginsberg, Adrian Go, Michael Grishkoff, Benjamin Gutow, Ihsan Haq, Geraldine Hardy, Herbert Hiller, Archie Hulick, Fikry Ibrahim, James Kennary, Edwin Kerr, Karl Kessel, Kyung Soo Kim, Arsenia Koh-Guevarra, Herman Koschnitzke, Mohan Lall, Sandra Leitner, Murray Levin, Nathan Levitt, Walter Livingston, Reuben Lopatin, Richard Lubera, Gholamali Malekheadayat, Lawrence McNichol, Madjid Mesgarzadeh, Paul Mitchell, Leon Morris, Warren Nesbit, Kathryn O'Connor, Logan A. Oney, Butchi Paidipathy, James K. Piper, Vasilios Pozios, Pinnamaneni Prasad, Bernard Rapoport, William Reidt, Harold Rodner, Ismael Romero, Herbert Rossin, Jagdish K. Sachdeva, Vijay Saigal, Mitchell Salhaney, Michel Salib, Mario Santiago, Sidney Schuchter, Stephen Senecoff, Eugene Shafarman, Herschel Shulman, Anil K. Sil, Freddy Sosa, Laurence E. Stawick, Albert Steinbach, Gerald Stronski, D. A. Tarpinian, Theodore Todoroff, B. David Wilson, Theodore Wizenberg, Henry Yee, David J. Young, Saeed Zanjani

The major objective of the educational program in internal medicine is to establish a firm conceptual basis for 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 in 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.



OPHTHALMOLOGY

Office: 101 Kresge Eye Institute

Chairperson: Robert S. Jampel

Professors

Edward S. Essner, Robert N. Frank, Clifford V. Harding, Jr., Robert S. Jampel, Irene E. Loewenfeld

Clinical Professors

Maurice Croll, H. Saul Sugar

Associate Professors

John W. Cowden, Ignaz M. Rabinowicz, Dong H. Shin, Fred Zwas

Clinical Associate Professors

David Barsky, Hugh Beckman, Robert J. Crossen, Conrad L. Giles, Albert D. Ruedemann, Jr., Lawrence L. Stocker, Michael A. Wainstock

Assistant Professors

Garron L. Klepach, Harold Weiss

Clinical Assistant Professors

John D. Baker, John P. Clune, Jo D. Issacson, Fritz Jardon, Leonard H. Lerner, Raymond R. Margherio, Lester E. McCullough, Sheldon D. Stern, T. G. Varbedian, James E. Watson

Instructor

Shirley T. Sherrod

Clinical Instructors

William C. Albert, Robert B. Blau, Jerome D. Davis, Lawrence B. Edelman, Gordon R. Fishman, Thomas H. Galantowicz, Robert I. Gans, Maurice A. Hall, Joseph A. Lioi, Marion G. McCall, Alan M. Mindlin, Morris J. Mintz, Frank A. Nesi, Robert J. Netzel, Hanna Obertynski, J. A. Olson, Patrick Villani, Noel A. VonGlahn, William A. Willoughby, Norman Zucker

Adjunct Professor

Venkat N. Reddy

Adjunct Assistant Professor

Fritz W. Jardon

The undergraduate program in ophthalmology consists of several lectures in the Departments of Physiology and Anatomy during the first year. Lectures and demonstrations in physical diagnosis occur during the second year. In the third year, five sessions are spent on the eye service under the supervision of the staff and residents. Electives are available during the fourth year.

ORTHOPEDIC SURGERY

Office: 7C Detroit Receiving Hospital

Chairperson: Herbert E. Pedersen

Professor

Herbert E. Pedersen

Clinical Professor

Frederick J. Fischer

Associate Professors

Richard L. LaMont, James R. Ryan, Gino G. Saliccioli

Clinical Associate Professors

Maxwell B. Bardenstein, William H. Blodgett, Maurice E. Castle, James J. Horvath,

Assistant Professors

David D. Aronson, Arthur Manoli II

Clinical Assistant Professors

Milton M. Green, Richard H. Hall, Eugene D. Horrell, G. Richard Jones, Shin-Young Kang, Robert S. Levine, Lawrence G. Morawa, Peter Palmer, Guy Pierret, Bal S. Prasad, L. James Roy, William H. Salot

Instructor

George Corondan

Clinical Instructors

Edward F. Burke, Walter L. Everett, James J. Faremouth, William K. Fulgenzi, Michael J. Geoghegan, Edward S. Jeffries, Wallace E. Johnson, Stuart A. Katz, Christopher L. Lee, Ronald E. Little, John M. McCollough, George V. Pandy, Leonard M. Pickering, Mitchell Z. Pollak, Carl E. Reichert, Jr., L. Carl Samberg, Daniel E. Schechter, 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: 5E University Clinics Building, 4201 St. Antoine

Chairperson: Robert H. Mathog

Professors

Arnold M. Cohn, Robert H. Mathog

Clinical Professors

G. Jan Beekhuis, I. Jerome Hauser (Emeritus), Bruce Proctor, Lyle G. Waggoner

Associate Professors

Phillip M. Binns, Dennis G. Drescher

Clinical Associate Professors

Ned I. Chalot, James Coyle, Paul J. Dzul, Royal C. Hayden, T. Manford McGee, Richard R. Royer, Miles Taylor, John C. Webster

Assistant Professors

John R. Jacobs, Sean B. Peppard

Clinical Assistant Professors

Pierre F. Giammanco, John W. Grigg, Edward B. Harrington, H. John Jacob, James K. Johnson, James McKenna, Daniel D. Megler, James Mimura, William J. Rice, Michael E. Rollins, Eugene Rontal, Michael Rontal, Martin B. Trotsky, Dieter Wendling

Instructor

Robert B. Stanley, Jr.

Clinical Instructors

John Alter, Paul W. Babcock, Donald Baltz, John A. Fushman, Michael S. Menge, Douglas D. Strong

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

Chairperson: Joseph Wiener

Professors

Robert D. Coye, John D. Crissman, Esther H. Dale (Emerita), Filiberto E. Giacomelli, George J. Kaldor, Eberhard F. Mammen, Eugene V. Perrin, Werner U. Spitz, Roger J. Thibert, Joseph Wiener, Bennie Zak

Clinical Professors

Jay Bernstein, Jacob L. Chason, James J. Humes, Sidney D. Kobernick, James W. Landers, Rosser L. Mainwaring, John W. Rebeck, Barbara F. Rosenberg, Julius Rutzky, Jacob N. Shanberge

Adjunct Professor

Gloria H. Heppner

Associate Professors

Majid A. Alousi, Surath K. Banergee, Dinyar K. Bhatena, Earnest Booth, A. Joseph Brough, Andrew R. W. Climie, Merlin E. Ekstrom, Khang-Loon Ho, Barbara J. Jenkins, Thomas C. Knechtges, Georgio Olivetti, Margarita Palutke, Waldemar A. Palutke, Henry E. Puro, David E. Wolfe

Clinical Associate Professors

John F. Fennessey, Molly T. Hayden, Carl M. Hasegawa, John D. Langston, John C. Long, Aaron Lupovitch, Gerald H. Mandell, Kenneth R. Meyer, Theodore A. Reyman, Jose Russo, William R. Sabes, Boris K. Silberberg, Frederick W. Wertheimer

Adjunct Associate Professors

E. S. Baginski, Emanuel Epstein, Norman H. Horwitz, Jeanne M. Riddle

Assistant Professors

Joseph D. Artiss, Raj D. Bhan, Harish Budev, Chung Ho Chang, William J. DiBattista, Clement A. Diglio, Alina M. Domanowski, Karni W. Frank, Judith Hoschner, Tuan H. Kuo, John Lucas, Roderick P. MacDonald, Ila H. Mirchandani, Myung Sook Pak, Kenneth C. Palmer, John T. Piligian, Nikolai Rachmaninoff, Irma Alvarez Russo, Richard J. Pollard, Marie R. Tenazas-Raval, Elisa C. Samson, Benjamin S. Turla, Michael A. Tyrkus, Robert F. Wylin

Clinical Assistant Professors

Billy B. Baumann, Edward G. Bernacki, Jr., Robert A. Bota, Jacob E. Briski, Donald R. Brock, Song H. N. Chae, Sajal P. L. Choudhury, Thomas F. Dutcher, Marie N. Fly, Lawrence W. Gardner, Alvaro A. Giraldo, Paul A. Goodman, B. R. Herschman, Sharada S. Hulbanni, Mijtaba Husain, Edward T. Konno, Herbert I. Krickstein, Noel S. Lawson, Allen J. Levine, John H. Libcke, Haresh G. Mirchandani, Lawrence E. Nathan, Joseph T. Powaser, Opas Ratanaproeksa, Candace A. Rich, James A. Rising, Thomas O. Robbins, Alexander N. Rota, Georg Russanow, John E. Smialek, Alexander S. Ullmann, Frank B. Walker, John C. Watts, Richard K. Wesley, Kum-Jung Youn, Richard M. Zirkin

Adjunct Assistant Professors

Carolyn Feldkamp, Amy M. Fulton, Stanley S. Levinson

Instructors

Jai Youn Lee, Joseph R. Merline

Adjunct Instructors

A. Amir Al-Saadi, G. A. Fischer

Clinical Instructors

Smita K. Joshi, Sawait Kanluen, Thomas F. McCormick

Associates

Robert O. Bollinger, Edward S. Essner, A. Martin Lerner, Joseph R. Monforte

Pathology is the study of disease. The Department of Pathology offers courses during the second, third and fourth years of medical school. In the second year, a full year is devoted to the study of anatomic pathology. This course consists of pathobiology (the cellular basis of disease) and systemic pathology (the gross, microscopic and ultrastructural features of systemic disease). General principles of clinical pathology (or laboratory medicine) are integrated into the systemic pathology units so that structure and function can be properly considered together.

The more specific details of surgical and pediatric pathology are taught to the third year students during their clinical clerkships. During the fourth year, students can elect subspecialty and/or research studies with various members of the Department.

Graduate Programs

The Department of Pathology offers programs in experimental pathology and clinical laboratory sciences that lead to the Doctor of Philosophy degree. A joint M.D.-Ph.D. program is also available.

Admission: Students are considered for admission to the graduate program of the Department of Pathology if they meet the requirements of the Graduate School 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 interests. Applicants are expected to provide their scores on the Graduate Record Examination, with an advanced test in either chemistry or biology. Personal interviews are most desirable. Letters of inquiry should be directed to the Graduate Officer of the Department.

Degree Requirements: Requirements for students enrolled in the doctoral degree programs are described in the Graduate School section of this bulletin. Students are expected to demonstrate their understanding of a core curriculum, consisting of basic pathology, biochemistry, physiology, cell biology, pharmacology, and immunology and microbiology, 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 and often include comparative pathology, medical statistics, computer applications and biochemical pathology. Research in pathology to complete requirements for the Ph.D. degree may be selected from the various fields of special faculty interest in this Department. In the area of experimental pathology these include cardiovascular pathology, nephropathology, cell biology, virology and tissue culture, comparative pathology, tumor biology and immunology, ophthalmic pathology, neurobiology and neuropathology, biochemistry of cardiac muscle, cytopathology, pulmonary and environmental pathology,

teratology, and forensic pathology. In the field of clinical laboratory sciences they include clinical chemistry, chemical pathology, clinical microbiology, immunohematology, immunochemistry and immunopathology, thrombosis and hemostasis, hematopathology and clinical immunology, immunogenetics and cytogenetics.

Financial Aid: Teaching and research fellowships are available for a limited number of well-qualified students. All students are required to perform teaching duties in the medical and graduate courses as part of their teaching-training activities. Inquiries should be directed to the Graduate Officer of the Department.



PEDIATRICS

Office: 3B59 Children's Hospital

Acting Chairperson: Larry Fleischmann

Professors

Flossie Cohen, Sanford N. Cohen, Adnan Dajani, Alan Done, Larry Fleischmann, Edward Green, William Gronemeyer (Emeritus), Ingeborg Krieger, Jeanne Lusher, Henry L. Nadler, George Polgar, Charles Whitten, Paul V. Woolley, Jr. (Emeritus)

Clinical Professor

Samuel Bernstein

Associate Professors

Regine Aronow, David Bailey, Yoav Ben-Joseph, Ralph Cash, James W. Collins, Jan Cejka, Reuben Dubois, David Faigenbaum, Zia Farooki, Robert Gregg, Zwi Hart, William Hoffman, Susumu Inoue, Joseph Kaplan, Ralph Kauffman, Joseph Miceli, Enrique Ostrea, Ward Peterson, Ronald Poland, Yaddanapudi Ravindranath, Thomas Shope, Harold Weiss

Clinical Associate Professors

E. Bryce Alpern, Louis Heideman, Charles Jennings, William Montgomery, Samuel Nichamin, Jane C. S. Perrin, Natalia Tanner, A. L. Thompson

Assistant Professors

Basim I. Asmar, Erawati Bawle, Mary P. Bedard, Kanta J. Bhamhani, Virginia Black, Robert O. Bollinger, Gerald Bottenfield, Eugene Cepeda, Sandra Clapp, B. A. Cushing, L. Das, Lynn D. Fleisher, Terry Goldberg, David M. Halton, Theresa Hsu, William L. Jackson, Sajid Maqbool, Mark Ottenbreit, Helen A. Papaioanou, Burton Perry, Daniel C. Postellon, Arthur Robin, Gilbert M. Rose, Norman Rosenberg, A. P. Sarnaik, S. Sarnaik, S. Shankaran, Ellen W. Sonda, Steven Spector, Stephen Sturman, M. Thirumoorathi, Michael Tyrkus, Indira Warriar, Margaret Z. Zolliker

Clinical Assistant Professors

Bassam Bashour, E. Dalton Black, George Blum, Avinash Chawla, Jay Eastman, Michael A. Facktor, Max Garber, Seymour Gordon, Nasr Haque, J. P. Harm, Louis Heyman, William Howard, Myung Ine, Thaddeus Joos, Josef Kobiljak, Ruben Kurnetz, Frederick Margolis, Mohan Menon, Irving Miller, Abdul M. Mirza, Wallace Nichols, Helen Nutting, John Pollack, Irving Posner, Ali Rabbani, Joseph Rivkin, Robert Rooney, William Rubinoff, Richard Ryszewski, Robert A. Scherer, Warren Shelden, Allen Sosin, Harvay Stein, Gerald Timmis, N. J. Truccofole, James Trumpour, Seetha Uthappa, Allan Weiner, Rosalyn Weintraub

Adjunct Assistant Professors

Noreen Brohl, Elizabeth Prevot

Instructors

Nirmala Bhaya, Helen A. Byrd, Jang-Sik Chung, Abbas Emami, Sudershan K. Grover, Herman B. Gray, Mark C. Horton, Ji Baik Kim, Andrew D. Maltz, Satyanarayana B. Rao, J. B. Savoy, K. Srinivasan, Sharon L. Tice, Helene E. Tigchelaar, Vasundhara K. Tolia, Donald T. Wasik, Thurza A. Wright

Adjunct Instructor*

Patricia A. Siegel

Clinical Instructors

Juan E. Alejos, Robert H. Burge, Marshall Blondy, Jurin Boriboon, Sheldon Brenner, John Bruno, Irving Burton, Barbara Chapper, Wyman Cole, Robert Cooper, Eugene Crawley, Margaret Dietze, David Dinger, Nathan Firestone, Carl Gagliardi, Gayatri Garg, William Gatfield, Madan Gupta, Anne-Marie Ice, Philip Jackson, Mary Kokosky, Seymour Krevsky, Alfred K. Newton, Pauline Pevin, Jorge Rose, Marilynn Rosenthal, Mark Roth, Hadi Sawaf, Marrion Scott, Emily L. Seydel, Shobharani Shivapuja, Stanford Singer, Kamilia Snyder, Donald Steepe, Harold Wagenberg, Joyce G. Wolf, Melissande Womack, Petronia Yadao, Paul Zavell, Robert Zink

Associates

A. Joseph Brough (Pathology), Chung-Ho Chang (Pathology), Joseph Fischhoff (Psychiatry), Jack Hertzler (Surgery), Linda Hryhorczuk (Psychiatry), Charles Inniss (Community and Family Medicine), Richard LaMont (Orthopedic Surgery), Christopher Lee (Orthopedic Surgery), Michael Nigro (Neurology), Alan Perlmutter (Urology), Eugene Perrin (Pathology), Arvin Philippart (Surgery), M. David Poulik (Immunology and Microbiology), Joseph Reed (Radiology), Jacqueline Roskamp (Pathology), 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 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/her group both on the wards and in the clinic. Pediatrics maintains contact with the student before and after the 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.

The Fourth Year Elective Program offers the senior student an opportunity to gain experience in general pediatrics at an increased level of responsibility in patient care. The student assumes an increasing share of the role of a primary caretaker under the supervision of the resident staff in advanced years of pediatric training. Experience in the areas of subspecialization in pediatrics is also offered to the senior student who is afforded the opportunity to improve the level of his/her clinical skills and to obtain familiarity with the application of clinical and laboratory research techniques to the investigation of pathophysiology in a wide variety of children. Further information and a catalog of course offerings may be obtained by writing to the office of the Chairperson of the Department.

PHARMACOLOGY

Office: 6374 Scott Hall

Chairperson: Bernard H. Marks

Professors

Gordon F. Anderson, Alan Done, Saradindu Dutta, Harold Goldman, David Kessel, Bernard H. Marks

Associate Professors

George E. Dambach, Mary Ann Marrazzi, Roy B. McCauley, Joseph Miceli, David R. Schneider, Eugene P. Schoener, James A. Thomas, Russell K. Yamazaki

Assistant Professor

Bonnie F. Sloane

Adjunct Assistant Professor

Joseph R. Monforte

Associates

Ralph Kauffman (Pediatrics), Michael Stanley (Psychiatry), John D. Young (Oncology)

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 species from microorganisms to man, either normal or diseased. The objective of pharmacology is establishment of the scientific basis for the understanding of rational therapeutics. This involves the use of drugs for the study of the mechanisms of cellular and tissue responses.

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 School 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 Graduate Officer of the Department.

Degree Requirements: Requirements for students enrolled in graduate degree programs are described in the Graduate School section of this bulletin, page 22. Students are expected to demonstrate their understanding of basic biochemistry, physiology 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. All students, whether or not they hold a fellowship, are required to perform teaching duties in the medical and graduate course as part of their teacher-training activities. Inquiries should be directed to the Graduate Officer of the Department.



PHYSICAL MEDICINE AND REHABILITATION

Office: 824 Rehabilitation Institute

Chairperson: Leonard F. Bender

Professors

Leonard F. Bender, Joseph N. Schaeffer (Emeritus)

Associate Professor

Harry O. Ingberg

Assistant Professor

R. Larry Joynt

Instructors

Adel Ali Elmagrabi, Sung J. Lim.

Clinical Associate Professors

Frank Cullis, Myron M. Laban

Clinical Assistant Professor

Alvin M. Brown

Clinical Instructors

Joseph F. Guyon, Dong W. Lee, Joseph R. Meerschaert, Ronald S. Taylor

Assistant Professor, Full-Time Affiliate

Chang-Zern Hong

Instructors, Full-Time Affiliate

Candace R. Caveny, Maury R. Ellenberg, Syed N. Iqbal, W. Kim, Asit K. Ray, T. E. Szymke

Associate

Jane C. S. Perrin (Pediatrics)

The Department of Physical Medicine and Rehabilitation encourages the student to gain knowledge of the patient as a person, not only of his/her disease. The student is taught to assess the neuromuscular and musculoskeletal systems and to manage disorders of these systems. In addition, a concept of rehabilitation is presented which considers not only the disease or injury that leads to chronic disability, but emphasizes the coordination of effective therapies and forces which will ameliorate the social, psychological 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, Detroit General Hospital, Sinai Hospital, Beaumont Hospital and Children's Hospital.

PHYSIOLOGY

Office: 5374 Scott Hall

Chairperson: John W. Phillis

Professors

Marion I. Barnhart, Paul C. Churchill, Piero P. Foa (Emeritus), Richard R. Gala, Raymond L. Henry, Felix T. Hong, Eberhard F. Mammen, Jan Nyboer (Emeritus), Lowell E. McCoy, John W. Phillis, James A. Rillema, Walter H. Seegers (Emeritus), Robert S. Shepard

Adjunct Professor

Robert M. Nalbandian

Associate Professors

Robin A. Barraco, Joseph C. Dunbar, Jr., David M. Lawson, David G. Penney, James A. Sedensky, Daniel A. Walz

Adjunct Associate Professors

Rodger L. Bick, Allen Silbergleit

Assistant Professors

Jeffrey L. Ram, Douglas R. Yingst

Adjunct Assistant Professors

Thomas R. Brown, Barry A. Franklin, Asghar Shafadeh, Michael D. Wider

Associates

Samuel C. Brooks (Biochemistry), Margo P. Cohen (Internal Medicine), Elizabeth J. Dawe (Surgery), Robert N. Frank (Ophthalmology), Thomas V. Getchell (Anatomy), E. S. E. Hafez (Gynecology and Obstetrics), William H. Hoffman (Pediatrics), Patricia Lynne-Davies (Internal Medicine), Jerry A. Mitchell (Anatomy), George Polgar (Pediatrics), Jerry C. Rosenberg (Surgery)

Physiology is the study of bodily function in all of its ramifications, with special emphasis on the characteristics of health and the nature of functional modifications. 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. Students holding the Doctor of Medicine degree with intent to continue toward the Doctor of Philosophy degree are advised to select courses which represent self-development and excellence in some special field of science. 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 School. In addition, applicants for the Doctor of Philosophy degree are expected to have a personal interview with the members of the departmental graduate committee.

Degree requirements: The over-all requirements for the Master of Science and Doctor of Philosophy degrees are set forth in the Graduate School 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 Chairperson of the Department.

Financial Aid

The Department has teaching assistantships and graduate research positions 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 on assistantships are advised to elect no more than twelve credits in a given semester. All students, whether or not they hold a fellowship or an assistantship, 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 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 C. Lafayette Clinic

Chairperson: Samuel Gershon

Professors

Harry E. August (Emeritus), Donald Caldwell (Psychobiology), Joseph Fischhoff, Charles E. Frohman (Biochemistry), Samuel Gershon, Louis S. Lipschultz (Emeritus), James C. Moloney (Emeritus), Norman Rosenzweig, Calvin E. Schorer

Clinical Professors

Edward F. Domino (Pharmacology), Alexander Grinstein, Elliot Luby, Peter A. Martin, Thomas A. Petty, Emanuel Tanay

Associate Professors

V. Bloom, Bernard Chodorkoff, Marvin Hyman (Psychology), Leonard Piggott, Michael Stanley (Psychopharmacology), Thomas M. Sullivan, Ronald E. Trunsky

Clinical Associate Professors

Benjamin Barenholtz, Melvin Bornstein, Lawrence A. Cantow, Frank Cellar, Calvin H. Chen, Bruce Danto, Abraham Elson, Sol C. Grossman, Sidney B. Jenkins, Viggo W. Jensen, Joseph E. Leazo, Channing T. Lipson, Frank Parcells, Carol E. Pearson, Kenneth Pitts, Douglas Sargent, Kenneth Schoof, Nathan Segal, Frederick Shevlin, Joseph Slusky, Max Warren

Adjunct Associate Professor

Tamara Ferguson (Sociology)

Assistant Professors

Leon E. A. Berman, Lewis Brodsky, Beth A. Brooks, Linn A. Campbell, Joseph Dulka, Barbara Geller, Lew M. Hryhorczak (Biochemistry), Linda Hryhorczuk, Lawrence Jackson, Norma Josef, Leonard Lachover, Jimmie P. Leleszi, Marvin Margolis, Robert Niccolini, Robert B. Pohl, John M. Rainey, Abdul G. Riaz, Harvey Rosen, Donald G. Ross, Ralph Rubenstein, Richard Ruzumna, Barbara Stanley (Psychology)

Clinical Assistant Professors

Irwin P. Adelson, Charles Barker, Seymour Baxter, Robert C. Behan, Lary R. Berkower, Ronald W. Blatt, Dale Boesky, Ruth Brackett, S. J. Breiner, Raymond Buck, Alice Chester, Sung-Ran Cho, Cassius A. DeFlon, Jack Dorman, Paul Feldman, Fulvio Ferrari, Lionel Finkelstein, Saul Forman, Michael Freedman, Max L. Gardner, Kessel Goknar, Walter Guevara, Gerhardt Hein, Louis Hoffman, Calvin H. Hughes, Kenneth Israel, Nathan Kalichman, Cassandra Klyman, Pang L. Man, Ben Marks, R. G. Mercier, Alvin B. Michaels, Mordeza Minui, John Moran, K.C. Nair, Roger F. Newton, A. Petrilli, Hyomyeong Rhiew, Margaret Roberts, Ronald Selbst, Marvin Sherman, Donald Silver, James Sonnega, Marvin Starman, Mayer Subrin, Robert S. Underhill, Habib Vaziri, Morris Weiss

Adjunct Assistant Professors

Curtis A. Bagne, Samuel Brinkman (Psychology), Louise Centers, Frank P. Pearsall

Instructors

Suresh Bilolikar, Emmanuel R. Casenas, Jun Tae Cho, George H. Hopson, Marcus K. Khimm, Vijayakshmi Kololgi, K. M. Druva Kumar, Hanheung Lee, Miriam Medow, Vimal P. Puri, Mohammad Saeed, Evelio Santiago, Gerald A. Shiener, Kathiravelu Thabolingam, David E. Vincent

Clinical Instructors

S. Bhama, Ruth S. Day, M. Frumin, Raul J. Guerrero, Harvey W. Halberstadt, L. J. Hatzenbeler, A. L. Hughett, Cyril D. Jones, Edward Klarman, Philip J. Parker, R. H. Parrish, Nunzio Pomara, Slobodan Popovic, Leonard Rosen, Wendell Sanders, H. M. Schornstein, M.J. Steinhardt, Merlin C. Townley

Adjunct Instructors

David R. Dietrich, Deanna Holtzman, Elaine N. Rogan, Robert Wills (Social Work)

Associates

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), Lawrence Tourkow (Psychiatry)

The educational objective of the teaching program 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/she 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 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 School 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 701 and 702. 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. The students' theses must be of a standard acceptable for publication in a professional journal.

RADIATION ONCOLOGY

Office: First Level, Health Care Institute

Chairperson: William E. Powers

Professors

Colin G. Orton, William E. Powers, H. Gunter Seydel

Associate Professors

Kenneth V. Honn, Jeannie Jones Kinzie, Donald P. Ragan, Joseph E. Thornhill

Clinical Associate Professors

Murray Boles, Harold Perry

Assistant Professor

Judith Haas

Clinical Assistant Professors

Basil Considine, Jwong H. Ling

Instructor

Richard C. Matter

Clinical Instructors

Karen S. Dosi, James Gamero, John K. Loh, Gangadhar Vaishampayan

The Radiation Oncology Department is responsible for the day-to-day care of cancer patients undergoing radiation therapy. The Staff is actively involved in clinical research including participation in national studies and in the teaching of cancer in all its aspects throughout the School of Medicine and hospitals. Members of the Department Staff are also active in radiobiology research. Summer clerkships in radiation therapy are available. Medical students considering a specialization in radiation therapy should also elect to take courses in internal medicine, radiology and radiation physics. An active residency program exists within Radiation Oncology and prepares candidates for certification in therapeutic radiology by the American Board of Radiology.

Graduate and Post-Graduate Programs

The Department of Radiation Oncology collaborates with the Radiology Department in its master's and Ph.D. degree program in radiation physics. The radiation therapy component of this program includes: calibration of therapy machines ranging from 110 KEV to 20 MEV Linear Accelerators; the design and utilization of treatment aides such as molds, casts, immobilization and repositioning devices; radiation dosimetry such as in vivo TLD, dose calculation, verification of treatment portals and implantation. Additionally, modern electronic equipment and computerized treatment planning devices are available.

RADIOLOGY

Office: Detroit Receiving Hospital and University Health Center

Chairperson: Kenneth L. Krabbenhoft

Professors

Kenneth L. Krabbenhoft, Jack S. Krohmer, Gertraud Wollschlaeger

Clinical Professors

Raymond S. Kurtzman, Joseph O. Reed, Maurice Tatelman, John N. Wolfe

Associate Professors

Eugene A. Harkaway, Kenneth V. Honn, F. Carlyle Stebner

Clinical Associate Professors

Shek C. Chen, George C. Evans, Leo S. Figiel, Steven J. Figiel, Raymond A. Gagliardi, Jack Handel, George A. Kling, E. Frederick Lang, Kenneth D. McGinnis, Donald L. Otto, Thomas L. Slovis, Joseph Thornhill, Fred K. Wietersen, Harvey I. Wilner

Adjunct Associate Professors

Albert Goldstein, Joseph Mantel

Assistant Professor

Razia Raouf

Clinical Assistant Professors

Forrest J. Arnoldi, Philip N. Cascade, David P. Corbett, Frederick Cushing, Simon Dolin, Calvin Ervin, Marvin Gordon, John H. Griffin, Daniel R. Guyot, Andrew J. Hankins, Myron H. Joyrich, John K. Kelly, Jr., Peter R. Miller, Vjekoslav Mikelic, Jaroslav Muz, Cynthia Nejjuk, Sarah G. Pope, Robert L. Ruskin, Barry I. Samuels, Francis P. Shea, Robert A. Songe, Frederick B. Watts, Burt T. Weyhing III, Alkis P. Zingas

Adjunct Assistant Professor

John J. Kim

Clinical Instructors

Kyoung-Soo Bae, William Moo-Won Chae, David J. Chait, Bradley J. Cherenzia, John K. Drumm, Veena Dua, Gary Galens, Adnan H. abbal, Thomas P. James, Chandrakant C. Kapdi, Heung Ki Kim, Karl T. Kristen, James M. Kuhlman, Melvin A. Magidson, Yogeshkumar Mody, Jesus Madrid Ocampo, Piushbhai Patel, Philip E. Perkins, Rojanandham Samudrala, Larry N. Schulz, Arthur Shufro, Robert D. Steele, Tse-Wai Tong, Isaias Villarosa, Nuromeo O. Vinluan, Pierre A. Zayat

Associates

Subhash C. Khullar (Internal Medicine), Colin G. Orton (Radiation Oncology), William E. Powers (Radiation Oncology), Donald P. Ragan (Radiation Oncology)

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 freshman 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 makes possible a better demonstration of anatomic structure and physiologic activity. Computed tomography is the newest technique added to our armamentarium. Techniques involving ultrasonography are included in both the undergraduate and graduate level of instruction. 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 in gross pathology.

In the clinical years, teaching of radiologic diagnosis, radiation therapy, nuclear radiology and ultrasonography 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 clerkship and in the clinics and various inter-departmental conferences.

Graduate Program in Radiological Physics

This course of study is intended to prepare candidates for a master's and/or a Ph.D. degree in radiation physics or in one of its branches—that is, diagnostic radiation physics, therapeutic radiation physics, or medical nuclear physics, or a combination thereof.

Basic knowledge required for the Ph.D. degree includes a master's degree in medical physics, physics or a physical science as one of the major subjects and courses covering the following: electricity and magnetism, atomic and nuclear physics, basic electronics, computer programming, undergraduate laboratory courses in experimental physics and a mathematics background (including differential equations and differentiation and integration of functions of several variables). Candidates seeking a Master's degree should have a similar background in their baccalaureate degree preparation.

Courses appropriate to graduate work in radiological physics include human anatomy and physiology, radiologic physics (applicable to all areas of radiology), radiobiology, radiation safety, applied statistics and introductory clinical radiology. The program will provide, through seminar courses in a hospital and/or laboratory setting, experience in the following areas:

Diagnostic Radiology— calibration; acceptance testing and quality assurance, radiation survey, radiation room design; patient radiation dose estimates; participation in lectures, teaching sessions and patient positioning; and federal, state and local regulations and requirements.

Radiation Therapy— calibration; acceptance testing and quality assurance; radiation survey; radiation room design; implant dosimetry; *in vivo* dosimetry (TLD); special devices; treatment planning; sealed sources; participation in lectures, discussion, dose calculations, verification of treatment chart calculations, patient rounds; and federal, state and local regulations and requirements.

Nuclear Medicine— assay of radionuclides; acceptance testing and quality assurance; computer techniques; patient radiation dose estimates; participation in lectures, discussions, interpretation of procedures; radiation safety; room design; federal, state and local regulations and requirements.

SURGERY

Office: 6th Floor, University Health Center

Chairperson: Alexander J. Walt

Professors

Ramon Berguer, Adrian Kantrowitz, John R. Kirkpatrick, Ronald L. Krome, Charles E. Lucas, Jerry C. Rosenberg, Yvan J. Silva, Alexander J. Walt, Arthur W. Weaver, Robert F. Wilson

Clinical Professors

Agustin Arbulu, Eduardo Arciniegas, Clifford D. Benson, Robert D. Larsen, Warren O. Nickel, Norman D. Nigro, Joseph L. Posch, Harry C. Saltzstein (Emeritus)

Associate Professors

Robert D. Allaben, David R. Antonenko, John B. Das, Charles L. Huang, Michael P. Kaplan, Anna M. Ledgerwood, Arvin I. Philippart, Vishwanath M. Sardesai, Donald B. Smith, Zwi Steiger, Choichi Sugawa, Judith E. Tintinalli

Clinical Associate Professors

Federico A. Arcari, Joseph S. Bassett, Gaylórd S. Bates, Ernest M. Berkas, Conrad F. Bernys, J. Howard Binns, John Reid Brown, Waldo L. Cain, William S. Carpenter, Jay C. Day, Thomas M. Flake, C. Jackson France, Jack H. Hertzler, Roger F. Higgins, John R. F. Ingall, Lyle F. Jacobson, Angelos A. Kambouris, Donald I. Kapetansky, Louis W. Kaufman, William A. Lange, Alfred M. Large, James R. Lloyd, Frank Monaco, Herbert J. Robb, Homer M. Smathers, Rodman E. Taber, Hilary H. Timmis, Henry J. Vandenberg, Jr., Gerald S. Wilson

Assistant Professors

Donald P. Atkinson, David L. Bouwman, Michael S. Dahn, Elizabeth J. Dawe, A. Joel Feldman, Eñ Gursel, Lloyd A. Jacobs, Arnold M. Jones, Donald W. Weaver, Blaine C. White, A. Neal Wilson, Michael H. Wood

Clinical Assistant Professors

Susan E. Adelman, Ingida Asfaw, Zacarias G. Asuncion, Jr., Claude Benavides, Alexander Blain III, Jason H. Bodzin, George T. Bradley, David Burnstine, Ruth B. Campbell, John W. Derr, Elmer P. Ellias, Vincent J. Gallant, Ramanlal Golwala, Medhi Hakimi, William A. Harrity, John M. Hartzell, David B. Hawtof, George C. Hill, John A. Ingold, Franklin R. Jackson, Patrick F. Jewell, Ali Kafi, Young Song Kim, Joseph S. Krakauer, Floyd H. Lippa, Robert J. Lucas, Hayward C. Maben, W. Peter McCabe, John N. Mehelas, Seid A. Moossavi, Charles A. Murray, John R. Pfeifer, Frank W. Prust, Stewart E. Pursel, Robert M. Reynolds, Paul Rizzo, Saul Sakwa, Krishna K. Sawhney, Andres D. RestoSoto, Andrew E. Stefani, Robert R. Threlkeld, Oscar C. Tumacder, Balak R. Verma, Vollard J. vonBerg, Satish C. Vyas, John F. Weiksnar, Fredrick Weissman, Gary J. Welsh, Scott W. Woods

Instructor

Robert M. Nelson

Clinical Instructors

Chairat Chomchai, Munuswamy Dayanandan, Michael L. DeMars, Vijay K. Dixit, Walter O. Evans, Mune Gowda, An-Shih Lee, Jules F. Levey, Steven E. Olchowski, Thomas J. Petinga, Ronald A. Rusko, Carl Sacks, Ward M. Smathers

Associate in Surgery

Allen Silbergleit

The main objectives of the Department of 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.

Each student has exposure to general, cardiothoracic, plastic and pediatric surgery. Emphasis 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.

With the unusually broad spectrum of surgical disease present in the Wayne State University affiliated hospitals, students have contact with oncological, vascular and gastrointestinal problems. Students also gain exposure to pediatric surgery at Children's Hospital of Michigan and a wide clinical experience at Detroit Receiving, Veterans' Administration in Allen Park, Harper-Grace and Hutzel 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 Receiving Hospital. This rotation enables the student to participate in the multi-disciplinary 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 surgery at an early stage.

UROLOGY

Office: 1 South, Hutzel Hospital

Chairperson: James M. Pierce, Jr.

Professors

Donald J. Jaffar (Emeritus), Alan D. Perlmutter, James M. Pierce, Jr.

Associate Professors

R. Lawrence Kroovand, Anthony J. Thomas, Jr.

Clinical Associate Professors

Harvey Y. Lewis, Edward J. Shumaker

Assistant Professors

C. B. Dhabawala, Joseph R. Oldford

Clinical Assistant Professors

Benjamin W. Dovitz, Melvin L. Hollowell, Arthur J. Johnson, Charles Kessler, Harold V. Morley, William H. Rattner, Guy W. Sewell, Bageshwari P. Sinha, Robert C. Thumann, Jr.

Clinical Instructors

Joel Kriegel, Stephen A. Liroff, Murray S. Mahlin, Isaac L. Rowell, 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, twelve lectures are given in the basics of urological care. Several senior electives are offered varying from four to eight weeks. There is a urology elective at Harper-Grace 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.

COURSES OF INSTRUCTION

Anatomy (ANA)

301. Introduction to Human Anatomy. Cr. 3

A basic human anatomy course with detailed emphasis on the musculo-skeletal system designed for upper division undergraduate students.

302. Human Anatomy. Cr. 4

Prereq: BIO 102. Material fee as indicated in *Schedule of Classes*. Survey course in gross human anatomy with basic histology and embryology.

303. Anatomy. Cr. 4

Open only to students in Allied Health Programs. Dissection and prosection; emphasis on neuromuscular system and functional correlation.

701. Human Gross Anatomy I. Cr. 6

Prereq: consent of instructor and acceptance into a graduate program in the School of Medicine. Lectures and dissection of the upper limbs, back, and thorax and abdomen. Written and practical examinations given for each region, including a final examination.

702. Human Gross Anatomy II. Cr. 2

Prereq: ANA 701; consent of instructor and acceptance into a graduate program in the School of Medicine. Lectures and dissection of the pelvis and perineum, and head and neck. Written and practical examination given for each region, including a final examination.

703. Human Microscopic Anatomy I. Cr. 2

Prereq: consent of instructor. The microscopic structure of tissues and organs.

704. Human Microscopic Anatomy II. Cr. 2

Prereq: ANA 703; consent of instructor. Advanced studies on the structure of tissues and organs.

705. Histological and Histochemical Techniques. Cr. 3

Prereq: ANA 703; consent of instructor. The preparation of material for microscopic examination.

706. Cell and Tissue Ultrastructure. Cr. 2

Prereq: consent of instructor.

707. Experimental Techniques in Vertebrate Cell Culture. Cr. 3

Prereq: consent of instructor. For anatomy graduate students.

708. Human Embryology. Cr. 3

Prereq: ANA 701 or 703; consent of instructor. Study of experimental and human embryology; developmental processes, with particular reference to human embryology.

709. Developmental Neurobiology. Cr. 2

Prereq: ANA 708 or equiv.; 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.

710. Human Reproduction. Cr. 3

Prereq: consent of instructor. Reproductive system macroscopic and microscopic structure, regulation and function during development and in the adult.

See page 633 for interpretation of numbering system, signs and abbreviations

711. Experimental Neuroanatomy. Cr. 2

Prereq: consent of instructor. Laboratory examination of the mammalian central nervous system; selected classical and experimental neuroanatomical techniques.

712. Principles of Neuroanatomy. Cr. 3

Prereq: consent of instructor. Histology, physiology, development, gross anatomy and functional aspects of the nervous system of man; emphasis on the brain and spinal cord.

713. Neuroanatomy. Cr. 4

Prereq: consent of instructor. For anatomy graduate students.

714. Fine Structure of the Nervous System. Cr. 2

Prereq: ANA 713; consent of instructor. Comprehensive study of the fine structure of the nervous system with the aid of light and electron microscopic preparations.

715. Comparative Neuroanatomy. Cr. 2

Prereq: ANA 712 or 713; 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.

718. Advanced Neuroanatomy. Cr. 2

Prereq: ANA 712 or 713; consent of instructor. Detailed study of whole brain sections of the human brain, cut in frontal, horizontal and sagittal planes.

719. Neuroscience Survey. (PHC 719) (IM 719) (PSY 719) (BIO 719) (PSL 719). Cr. 3

Prereq: consent of instructor. Interdisciplinary overview of principles of neurosciences.

720. Neurophysiology. Cr. 3

Prereq: consent of instructor.

721. Experimental Neurophysiology. Cr. 2-10 (Max. 20)

Prereq: ANA 712 or 713; and 720 and 722 or equiv.; consent of instructor. Advanced studies on the nervous system with emphasis on technical methods. Experiments using various electrophysiological techniques.

722. Seminar in Neurophysiology. Cr. 2 (Max. 6)

Prereq: ANA 712 or 713 and 720 or equiv.; consent of instructor. Electrical and chemical phenomena of neural membrane and synapses.

723. Molecular Biology and Primate Evolution. Cr. 1-3

Prereq: consent of instructor. Principles of immunoembryology, immunogenetics, and biochemical systematics, and their application to the study of primate evolution.

724. Human Biology. Cr. 2

Prereq: consent of instructor. Quantitative human population biology. Current research in normal human biological variation and its causes.

726. Special Dissection. Cr. 2-10 (Max. 20)

Prereq: consent of instructor.

727. Special Projects in Anatomy. Cr. 2-10

Prereq: consent of instructor.

728. Fetal and Neonatal Anatomy. Cr. 2

Prereq: ANA 701 and 702; consent of instructor.

729. Regional Gross Anatomy I: Back and Limbs. Cr. 3

Prereq: ANA 701 and 702 or equiv.; consent of instructor. Lecture on and dissection of the human back and limbs, one afternoon per week; emphasis on the clinical aspects of anatomy.

730. Regional Gross Anatomy II: Head and Neck. Cr. 3

Prereq: ANA 701 and 702 or equiv.; consent of instructor. Lecture on and dissection of the human head and neck, one afternoon per week; emphasis on the clinical aspects of anatomy.

731. Regional Gross Anatomy III: Thorax, Abdomen and Pelvis. Cr. 3

Prereq: ANA 701 and 702 or equiv.; consent of instructor. Lecture on and dissection of the human thorax, abdomen and pelvis, one afternoon per week; emphasis on the clinical aspects of anatomy.

789. Seminar. Cr. 1(Max. 4)

Prereq: consent of instructor.

790. Directed Study in Physical Anthropology. (ANT 790). Cr. 1-8(Max. 8)

Prereq: consent of adviser and graduate officer.

796. Research. Cr. 1-15 (Max. 30)

Prereq: consent of instructor.

899. Master's Thesis Research and Direction. Cr. 1-8(8 req.)

Prereq: consent of adviser.

999. Doctoral Dissertation Research and Direction. Cr. 1-16(30 req.)

Prereq: consent of doctoral adviser. Offered for S and U grades only.

Audiology (AUD)

540. (SPM 540) Introduction to Audiology. Cr. 3

Prereq: consent of instructor. Introduction to physics of sound, anatomy of the hearing mechanism, audiometry, hearing aids, habilitation and rehabilitation of the hearing handicapped.

542. (SPM 542) Speech Reading and Auditory Training. Cr. 4

Prereq: AUD 540 or consent of instructor. Principles and methods of teaching speech reading and utilizing auditory training for the hard-of-hearing and deaf.

544. (SPM 544) Practicum in Audiology. (Fld: 6; Lct: 1). Cr. 1

Prereq: AUD 540 and written consent of instructor. Supervised training and practice for clinical certification; not open for credit to graduate students in audiology.

548. (SPM 548) Clinical Instruments. Cr. 3

Prereq: graduate standing in audiology or consent of instructor. Design, calibration, and use of electro- and bioacoustic instruments in clinical audiology.

549. (SPM 549) Acoustics, Sound, and Noise. Cr. 3

Prereq: AUD 548 or consent of instructor. Study of the generation, measurement, and control of sound and noise as related to problems in clinical and industrial audiology.

640. (SPM 640) Anatomy and Physiology of the Auditory System. Cr. 3

Prereq: graduate standing in audiology or consent of instructor. Functional anatomy, physiology, and neurology of the hearing mechanism.

641. (SPM 641) Pure-tone and Speech Audiometry. Cr. 3

Prereq: graduate standing in audiology or consent of instructor. Fundamental principles and clinical applications of pure-tone and speech audiometry. Laboratory assignments required.

642. (SPM 642) Advanced Auditory Tests. Cr. 3

Prereq: AUD 641. Application of pure-tone and speech audiometry

to complex auditory problems. Use of physiological tests in the diagnostic process. Laboratory assignments required.

643. (SPM 643) Hearing Aids. Cr. 3

Prereq: AUD 641. Electroacoustic and clinical aspects of auditory amplifiers for the hearing handicapped.

644. (SPM 644) Aural Rehabilitation. Cr. 3

Prereq: six 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.

645. (SPM 645) Clinical Topics in Audiology. Cr. 1-2(Max. 8)

Prereq: written consent of department. Study of special current topics in audiology. Topics to be announced in *Schedule of Classes*.

740. (SPM 740) Research Projects in Audiology. Cr. 3 (Max. 9)

Prereq: written consent of instructor. Materials fee assessed for projects using computer. Material fee as indicated in *Schedule of Classes*. Methods and procedures for experimental study of auditory function in the normal and hard-of-hearing; independent research projects.

741. (SPM 741) Psychoacoustics. Cr. 3

The behavioral response of organisms to sound. In-depth study of classical and contemporary topics in psychological acoustics. Laboratory included.

742. (SPM 742) Industrial and Community Problems in Audiology. Cr. 3

Prereq: six graduate credits in audiology or consent of instructor. Hearing conservation programs in industry and in the community; discovery and prevention of hearing loss; auditory and non-auditory effects of noise on hearing; medico-legal problems.

743. (SPM 743) Pediatric Audiology. Cr. 2

Prereq: AUD 641 and consent of instructor. Introduction to embryology; tests and test procedures; counseling of parents with hearing-impaired children.

745. (SPM 745) Statistical and Experimental Procedures in Audiology I. Cr. 4

Prereq: consent of instructor. Introduction to descriptive and inferential statistics and experimental designs as applied to auditory, psychophysical, and behavioral data. Non-parametric and correlational procedures.

746. (SPM 746) Statistical and Experimental Procedures in Audiology II. Cr. 4

Prereq: AUD 745. Continuation of AUD 745. Application of analysis of variance procedures to auditory, psychophysical and behavioral data.

749. (SPM 749) Educational Management of Hearing Impaired Children. Cr. 3

Prereq: AUD 643 and 743 or written consent of instructor. Preschool guidance and counseling, modern educational models and placements options, and the role of the audiologist in educational management.

840. (SPM 840) Anatomy and Physiology of the Vestibular System. Cr. 3

Prereq: consent of instructor. Functional anatomy, physiology, and neurology of the vestibular system.

841. (SPM 841) Audiology I. Cr. 3

Prereq: AUD 641, 642, and 643 or consent of instructor. Open only to post-Master's students. Special procedures and applications of pure-tone and speech audiometry with emphasis on theoretical factors and research.

842. (SPM 842) Audiology II. Cr. 3

Prereq: AUD 841. Special procedures and applications of behavioral, physiological, and bioelectric audiometry with emphasis on theoretical factors and research.

843. (SPM 843) Electronystagmography. Cr. 2

Instrumentation, procedures, and interpretation of ENG recordings.

848. (SPM 848) Seminar in Audiology. Cr. 3(Max. 12)

Prereq: consent of instructor.

Biochemistry (BCH)

101. Introductory Biochemistry. Cr. 2

Prereq: CHE 101. Fundamentals of biochemistry, especially areas of importance to students of occupational and physical therapy.

501. General Biochemistry Lectures. Cr. 2

Prereq: quantitative analysis. Structural biochemistry, metabolism of carbohydrates; lipids, proteins and nucleic acids.

502. General Biochemistry Laboratory. Cr. 2

Prereq: quantitative analysis. Material fee as indicated in *Schedule of Classes*. Laboratory experience in quantitative techniques of biochemical importance.

503. General Biochemistry Lecture. Cr. 2

Prereq: BCH 501. Clinical enzymology; metabolism of steroids; hormones; biochemistry of tissues and body fluids.

504. General Biochemistry Laboratory. Cr. 2

Prereq: BCH 502. Material fee as indicated in *Schedule of Classes*. Laboratory experiences in quantitative techniques of biochemical importance.

701. General Biochemistry Lecture. Cr. 3

Prereq: organic chemistry; consent of instructor for part-time students. Introduction to biochemistry (first course of the graduate sequence). Structure of biological molecules, enzymes and bioenergetics, intermediary metabolism.

702. General Biochemistry Laboratory. Cr. 3-4

Prereq: quantitative analysis, organic chemistry, general biology. Material fee as indicated in *Schedule of Classes*. Methods of preparative and analytical biochemistry; analysis of biochemical data.

703. Advanced Biochemistry Lecture I. Cr. 2

Prereq: BCH 701 or equiv. Continuation of BCH 701; emphasis on biochemistry of proteins and nucleic acids.

705. Interpretation of Biochemical Data. Cr. 1

Prereq. or coreq: BCH 701. Open only to biochemistry graduate students; others by consent of instructor. Drill in the quantitative aspects of biochemistry by use of the problem-solving approach. Problem sets assigned weekly; solutions subsequently presented and discussed.

756. Special Topics in Biochemistry. Cr. 1-6

Prereq: BCH 703 or equiv. Subjects of current importance in biochemistry.

760. Advanced Biochemistry Lectures II. Cr. 2

Prereq: BCH 701, 703, 705; consent of instructor for non-biochemistry students. Physical-chemical concepts and methods involved in analysis; structure and properties of proteins and nucleic acids and their biologically important interactions.

761. Basic Instrumentation. Cr. 2
Prereq: college level physics; coreq: M T 790 recommended. Basic and practical aspects of biochemical instrumentation including operation and trouble shooting.

764. Enzymology. Cr. 3
Prereq: BCH 701, 702, 705 or equiv. Material fee as indicated in *Schedule of Classes*. Case study approach to the mechanism, kinetics and thermodynamics of enzyme catalysis and regulation. Course consists of lectures and workshops involving kinetic analysis, computer simulation and modeling of selected enzymes.

766. Bioenergetics. Cr. 2
Prereq: BCH 701, 702, 703 or equiv. and consent of instructor. Current knowledge of the biochemical and biophysical properties of the respiratory chain components; control of energy generation, conservation and utilization; structure function relationship of mitochondrial membranes. Current literature cited.

767. Advanced Biochemistry Laboratory. Cr. 2-4
Prereq: BCH 702, 703. Advanced laboratory techniques as applied to investigations of biological materials.

769. Biochemistry of Disease. Cr. 2
Prereq: BCH 701, 703 or equiv. and consent of instructor. The relationship of biochemistry to selected medical disorders.

777. Clinical Biochemistry I. (PTH 777). Cr. 2
Prereq: BCH 703 or equiv. Biochemical theory and applications as related to the clinical laboratory.

778. Clinical Biochemistry II. (PTH 778). Cr. 2
Prereq: BCH 703 or equiv., 777. Continuation of BCH 777.

785. Current Topics in Biochemistry. Cr. 1
Study of current biochemical literature, on which student makes oral presentation; faculty and student discussion.

789. Seminar. Cr. 1(Max. 4)
Prereq: BCH 703 or equiv.

796. Research. Cr. 1-15(Max. 30)
Prereq: consent of adviser and graduate officer.

899. Master's Thesis Research and Direction. Cr. 1-8(8 req.)
Prereq: consent of adviser.

999. Doctoral Dissertation Research and Direction. Cr. 1-16(30 req.)
Prereq: consent of doctoral adviser. Offered for S and U grades only.

604. Survey Sampling Methods. Cr. 3
Prereq: C M 601 or equiv. Required of M.S. students in Community Health Services program who plan to use a survey in their thesis. Fundamental concepts of sampling; simple random sampling, stratification; systematic sampling and other selection techniques; clustering and cluster sampling; multi-state sampling; non-sampling errors. Laboratory exercises on sampling techniques and problems with emphasis on health and medical surveys.

710. Introduction to Organization and Administration of Community Health Services I. Cr. 3
Prereq: consent of instructor. Required of all M.S. students in Community Health Services program. General overview of the U.S. health care system; social and organizational aspects of the delivery, financing, utilization, planning, and development of health care systems.

711. Introduction to Organization and Administration of Community Health Services II. Cr. 2
Prereq: C M 710. A study of special topics in the health care field: health maintenance organizations, public programs, planning, evaluation procedures.

721. Research Methods for Health Professionals. Cr. 3
Prereq: consent of instructor. Required of all M.S. students in Community Health Services program. Logic of research design; formulation of research problems and study objectives; development of hypotheses, specification of variables; sampling, random assignment; issues in measurement; methods of data collection, sources of error; analyses; report writing and grant applications.

722. Survey of Program Evaluation in Health Services. Cr. 2
Prereq: consent of instructor. Background and history of program evaluations; different approaches; organizational and ethical issues; definition of objectives; issues in measurement, data collection and analysis; implementation of results.

724. Epidemiology. (OEH 724). Cr. 2
Prereq: consent of instructor. Required of all M.S. students in Community Health Services. Open to students in the College of Nursing, College of Pharmacy and Allied Health Professions, and others. Epidemiologist's task list; research of problems without known etiology; infectious and non-infectious models; examination of current problems.

726. Health Services Research. Cr. 2
Prereq: consent of instructor. Advanced techniques in research methods with emphasis on problems of design, measurement, data collection and analysis.

730. Health Care Policy. Cr. 3
Prereq: consent of instructor. Required of all M.S. students in Community Health Services program. Concepts, issues, and problems in health care policy; substantive information regarding policy formulation and content.

731. Health Care Policy in Michigan. Cr. 2
Prereq: consent of instructor. Concepts, issues and problems; context and content of health care policy in Michigan and the metropolitan Detroit community.

732. The Social Basis of Health Care. Cr. 2
Prereq: consent of instructor. Concepts, issues, and problems related to the social basis of health care; strategies and tactics for community health care organization and change.

733. Aging and Health Care. Cr. 2
Prereq: consent of instructor. Concepts, issues, and problems of health care for the elderly; examination of programs, policies and services in the metropolitan Detroit community.

Community Medicine (C M)

601. Biostatistics I. Cr. 3
Prereq: consent of instructor. Required of all M.S. students in Community Health Services program. Descriptive statistics; elementary probability; measures of central tendency and of dispersion; random samples; probability distributions including the binomial, the Poisson, the normal, the t, the Chi-square, and the F; introduction to estimation and hypothesis testing; rates and vital statistics.

602. Biostatistics II. Cr. 2
Prereq: C M 601 or equiv. For students in the medical care, pharmacologic, and allied health fields. Introduction to analysis of variance and research design in health investigations; linear regression and correlation; enumeration data; nonparametric methods; bio-assay; statistical analysis of health data.

734. Health and Work in America. Cr. 2

Prereq: consent of instructor. Concepts, issues and problems; relevant public policy at national, state and local levels.

740. Survey of Health Economics. Cr. 3

Prereq: consent of instructor. Required of all M.S. students in Community Health Services program. Examination of the fundamental concepts of economics as they apply to the health sector: demands, production, cost, supply, market and non-market resource allocation.

741. Health Insurance and Program Benefits. Cr. 2

Prereq: consent of instructor. Principles of insurance; identifications of risk and insurable events; development of benefit packages; public regulation; effect of program benefits on providers.

750. Issues in Hospital Organization. Cr. 2

Prereq: consent of instructor. Role of the hospital in the delivery of health services; structure of the hospital; examination of the emerging changes in the role and organization of the hospital.

789. Master's Seminar. Cr. 1

Prereq: consent of adviser. Offered for S and U grades only. Required of and restricted to M.S. students in Community Health Services Program. Presentation and discussion of thesis work-in-progress and other relevant research.

790. Directed Studies in Community Health Services. Cr. 1-2

Prereq: written consent of adviser and graduate officer. Studies dealing with the organization and management of community health services to supplement regular course offerings.

890. Master's Project. Cr. 1-3(3 req.)

Prereq: consent of adviser.

899. Master's Thesis Research and Direction. Cr. 2-8(8 req.)

Prereq: consent of adviser. Thesis research.

Immunology And Microbiology (I M)

551. Microbiology and Immunology. Cr. 1-6

Prereq: BIO 220. Open only to juniors in Medical Technology Program; others by written consent of instructor. Material fee as indicated in *Schedule of Classes*. Lectures and laboratory exercises in the fundamentals of microbiology and immunology and a detailed consideration of the microbial agents of disease.

555. Medical Technology Parasitology. Cr. 4

Prereq: registration in medical technology program, consent of instructor. Material fee as indicated in *Schedule of Classes*. Discussion and practical considerations of parasitic organisms as disease agents in man, their epidemiologic, clinical pathological significance and practical diagnostic methodology.

660. Medical Mycology. Cr. 3

Prereq: consent of instructor. Discussions of the fungal diseases of man relating ecologic associations, disease, and laboratory diagnosis. Laboratory exercises permit isolation and gross and microscopic examination of the organisms and the application of special tests used for identification of the fungi.

712. Medical Parasitology and Entomology. Cr. 5

Prereq: basic background in biology. Discussion and practical study of parasitic organisms as disease agents in man, their epidemiological, clinical and pathological consequences.

719. (ANA 719) Neuroscience Survey. Cr. 3

Prereq: written consent of instructor. A substantive overview of neuroscience as a multifaceted discipline; general properties of brain

cells, organization and function of nervous system, and muscular system in behavior and pathology.

748. Fundamentals of Immunology. Cr. 1

Material fee as indicated in *Schedule of Classes*. Basic concepts in immunology, including antigenicity, antibody structure and function, and cell-mediated immunity; sound understanding of biology and chemistry is assumed.

750. Fundamentals of Microbiology. Cr. 2

Prereq: organic chemistry. Detailed introduction to microbiology, including comparison of eukaryotic and prokaryotic cells, and the structure and function of the bacterial cell and viruses.

751. Medical Microbiology. Cr. 5

Prereq: I M 750 and written consent of instructor. Lectures, laboratory and quizzes in the fundamentals of bacteriology, immunology, mycology, parasitology, and virology. Cultural and serological characteristics of pathogenic microorganisms; techniques employed in the diagnosis of infectious diseases.

753. Advanced Microbiology. Cr. 3

Prereq: I M 750 or written consent of instructor. Advanced treatment of selected aspects of microbiology, including bacterial cell walls, membranes, regulatory mechanisms, and biochemical genetics.

754. Techniques in Electron Microscopy. Cr. 2

Prereq: written consent of instructor. Discussion and training in the use of the electron microscope; preparation and evaluation of ultrathin sections.

758. Clinical Microbiology Practice. (Fld: 2). Cr. 3

Prereq: I M 551, 751 or equiv. Training and experience in the diagnostic microbiology laboratory at approved affiliated hospitals, under the supervision of the faculty of the Department of Immunology and the School of Medicine. Opportunity for students to apply training received in formal courses; introduction to problems arising in clinical work.

760. Advanced Immunology. Cr. 3

Prereq: I M 748 or written consent of instructor. Current developments in immunology; emphasis on lymphocyte function, differentiation and interaction; regulation, enhancement and suppression of the immune response; principles of autoimmunity, transplantation and tumor immunity.

761. Immunology Laboratory. Cr. 2

Prereq: I M 760 and written consent of instructor. Current techniques in experimental immunology.

764. Clinical Immunopathology. Cr. 2

Prereq: I M 760 or 765. Study of pathogenic conditions in which the immune system plays a major role; clinical studies.

765. Immunochemistry. Cr. 2

Prereq: I M 748. 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.

768. Clinical Immunology. Cr. 2

Prereq: I M 748 and written consent of instructor. Performance of clinical immunology laboratory studies; evaluation of patients with faculty members and discussion of test interpretation.

770. (BIO 702) Comprehensive Virology. Cr. 4

Prereq: BCH 701. Basic principles, including virus structure, the nature of virus-host interactions, and the molecular biology of virus multiplication. Workshops on virus structure, viral techniques, and presentations by guest speakers.

775. Bacterial Metabolism. Cr. 2

Prereq: I M 750, BCH 701 recommended. Chemical activities and organization of the bacterial cell in relation to biochemical function, energy mechanisms, oxidation and fermentation, bacterial nutrition, and physiological evolution. Principles of quantitative techniques used in biochemical research on microorganisms.

776. Bacterial Metabolism Laboratory. Cr. 3

Prereq: BCH 702, I M 750 recommended; consent of instructor. Basic laboratory techniques in the handling of a variety of enzyme systems.

778. Educational Methods in Medical Immunology and Microbiology. Cr. 4

Open only to graduate students in Department of Immunology and Microbiology. Seminars and practical application designed to provide students with teaching experience in immunology and microbiology.

780. Microbial Genetics. Cr. 3

Prereq: background in genetics or cell biology and consent of instructor. Basic aspects of DNA replication, mutagenesis, mutant characterization, gene regulation and expression. Genetic transfer mechanisms: transformation, transduction, conjugation, plasmids and their function and transfer. Recombination: classical and additive. Bacteriophage structure, reproduction and recombination: DS-DNA phage; SS-DNA; RNA phage. Molecular mechanisms for recombination.

781. Techniques in Genetics. Cr. 2

Prereq: I M 780; written consent of instructor. Selection of mutants of bacteria, bacterial transformation, DNA hybridization, selected use of radioactive isotope, bacterial recombination; special project.

782. Molecular Genetics. Cr. 3

Prereq: I M 780 or equiv. Principles of gene transfer; physical and genetic aspects of recombination; plasmid DNA structure, genetics and regulation.

783. Immunogenetics. Cr. 2

Prereq: I M 760 or consent of instructor. Fundamentals of immunogenetics, including the genetics of immunoglobulin molecules, histocompatibility complexes, and immune responses in mice, man and other animal species.

784. Recent Advances in Immunology and Microbiology. Cr. 1-5

Prereq: written consent of instructor. Seminars in selected areas.

785. Current Trends in Immunology and Microbiology. Cr. 1-5(Max. 20)

Prereq: written consent of instructor. Offered for S and U grades only. Lectures and discussions of current literature and research problems.

789. Seminar. Cr. 1

Prereq: consent of adviser. Offered for S and U grades only.

796. Research. Cr. 1-8(Max. 12)

Prereq: consent of adviser and graduate officer. Offered for S and U grades only.

899. Master's Thesis Research and Direction. Cr. 1-8(8 req.)

Prereq: consent of adviser.

999. Doctoral Dissertation Research and Direction. Cr. 1-16(30 req.)

Prereq: consent of doctoral adviser. Offered for S and U grades only.

Pathology (PTH)

500. Fundamentals of Pathology. Cr. 2

Coreq: ANA 0301. Open only to allied health students. Fundamentals of tissue injury and repair.

600. Clinical Cytopathology. Cr. 6

Prereq: consent of instructor.

700. General Pathology. Cr. 3

Prereq: BCH 701, BCH 702, BCH 703; PSL 752, PSL753, PSL 754; I M 750; ANA 757, ANA 781. The structural and functional manifestations of disease. Concepts of biochemistry, physiology and cell biology are utilized in developing a dynamic approach to the study of the abnormal cell and its constituents. Basic mechanisms are stressed.

701. Immunochemistry and Plasma Protein Pathology. Cr. 2

Prereq: BCH 701, BCH 702, BCH 703; I M 750. Basics of immunochemical methods which are widely employed for the detection and study of dysproteinemias and many other disorders of body fluids and tissue protein metabolism.

702. Tissue Culture: Methods and Applications. Cr. 3

Prereq: BIO 600. Lecture and laboratory introduction to organ and cell culture techniques.

703. Viral-Related Human Disease. Cr. 2

Prereq: PTH 700. Etiology, pathogenesis, pathology and diagnosis of viral-related human disease.

704. Principles of Analytical Toxicology. Cr. 2

Prereq: PHC 750 and PTH 725. Analysis of drugs in biological samples in conjunction with symptomatology of poisoning, metabolic transformations and therapeutic procedures.

705. Introductory Hematology. Cr. 2

Prereq: enrollment in affiliated pathology program or consent of instructor.

708. Special Topics in Pathology. Cr. 1-15

Prereq: PTH 700, consent of instructor. Frontier areas in experimental pathology and clinical laboratory sciences. Format may be lecture, laboratory, or discussion; topics to be announced in *Schedule of Classes*.

710. Urologic Pathology. Cr. 2

Prereq: M.D. degree.

713. Neuropathology. Cr. 2

Prereq: consent of instructor.

715. Pathology of Respiratory Tract. Cr. 2

Prereq: M.D. degree.

718. Cardiovascular Pathology. Cr. 2

Prereq: PTH 700, ANA 706. Gross, microscopic and submicroscopic anatomy and pathophysiology of cardiovascular disease, both human and experimental.

719. Immunopathology of Lymphoid and Other Hematologic Disorders. Cr. 2

Prereq: ANA 757, ANA 781; I M 750.

722. Heart Conference. Cr. 2

Prereq: M.D. degree.

725. Instrumentation in Clinical Biochemistry. Cr. 2

Prereq: BCH 701, BCH 702, BCH 703.

726. Clinical Radiolabeling: Theory and Applications. Cr. 3
Prereq: BCH 701, BCH 702, BCH 703.

727. Pathophysiology of Hemostasis. Cr. 3
Prereq: BCH 701, BCH 702, BCH 703; PSL 752.

728. Medical Statistics. Cr. 2
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.

729. Biochemical Pathology I. Cr. 2
Prereq: BCH 701, BCH 702, BCH 703. Alterations of biochemistry associated with disease processes, with emphasis on the application of newer biochemical principles.

730. Biochemical Pathology II. Cr. 2
Prereq: PTH 729. Continuation of alterations of biochemistry associated with disease processes; emphasis on application of newer biochemical principles.

733. Pathology of the Kidney. Cr. 2
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.

734. Introduction to Electron Microscopy. Cr. 3
Prereq: ANA 703 and ANA 706. Theory and practice of transmission electron microscopy applied to thin sections of biological tissues and freeze-fracture replicas. Scanning, electron microscopy; electron lens operation, and limits of resolution and qualitative image interpretation. Laboratory exercises.

737. Oral Pathology. Cr. 2
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.

738. Medical Cytogenetics. Cr. 2
Prereq: PTH 700.

739. Cancer Biology. Cr. 2
Prereq: BCH 701, BCH 702, BCH 703; PTH 700. Readings and discussion on current topics in experimental oncology, including neoplastic development, carcinogenesis, progression and metastasis, and host responses.

740. Cancer Immunology. Cr. 2
Prereq: PTH 739, I M 750. Seminar on host defenses in cancer, basic mechanisms and clinical applications.

743. Forensic Pathology and Jurisprudence. Cr. 2
Prereq: M.D. degree.

744. General Comparative Pathology. Cr. 2
Prereq: PTH 700 or consent of instructor. Fundamental mechanisms and manifestations of disease; emphasis on animal disease. Selected pathophysiological processes involving the major organ systems.

745. Comparative Pathology. Cr. 3
Prereq: PTH 744, consent of instructor. Study of useful models of human disease in animal species. Spontaneous and experimentally-induced disease models from marine, laboratory, exotic (zoo), companion and domestic animal species. Lectures and laboratory.

746. Radioimmunoassay: Principles and Applications. Cr. 3
Prereq: BCH 701, BCH 702, BCH 703. Principles of radioimmunoassay and competitive binding assay, related physics, instrumentation and radiation safety. Specific examples of tests available and interpretation of results.

748. Immunologic Hematology for Blood Banking. Cr. 2
Prereq: PTH 700. 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.

756. Biochemistry of Muscle Contraction. Cr. 2
Prereq: BCH 701, BCH 702, BCH 703. Composition, molecular structure and enzymatic aspects of muscle; the molecular dynamics associated with contraction; and patho-biochemical adaptations in myosin ATPase.

757. Cellular Neuropathology Cr. 2
Prereq: PTH 700 and/or consent of instructor. Cellular and molecular pathogenesis of selected disorders of the nervous system in animals and men.

777. (BCH 777) Clinical Biochemistry I. Cr. 2
Prereq: BCH 701, BCH 702, BCH 703; or consent of instructor. Practice of clinical biochemistry in a hospital or reference laboratory; background in direction of clinical chemistry laboratories.

778. (BCH 778) Clinical Biochemistry II. Cr. 2
Prereq: BCH 701, BCH 702, BCH 703; or consent of instructor. Continuation of PTH 777. Clinical biochemistry background in the direction of hospital or reference laboratories.

789. Seminar. Cr. 1
Prereq: written consent of departmental graduate officer.

790. Directed Study in Clinical Pathology and Pathologic Anatomy. Cr. 2 (Max 12)
Prereq: consent of adviser and/or graduate officer.

999. Doctoral Dissertation Research and Direction. Cr. 1-16
Prereq: consent of graduate committee. Open only to Ph.D. candidates in pathology. Offered for S and U grades only.

Pharmacology (PHC)

503. Individual Research in Pharmacology. Cr. 2-5
Prereq: undergraduate background in biology and chemistry through organic; consent of departmental faculty adviser. Direct participation in laboratory research into the ways drugs affect cell processes, under the supervision of a departmental faculty adviser. Introduction to experimental protocol and current related scientific literature.

719. (ANA 719) Neuroscience Survey. Cr. 3
Prereq: consent of instructor. A substantive overview of neuroscience as a multifaceted discipline; general properties of brain cells, organization and function of nervous system, and nervous system in behavior and pathology.

750. Pharmacology Lecture. Cr. 4
Prereq: PSL 752, PSL 753, BCH 701. Introductory presentation of drug actions on living tissue.

751. Pharmacology Laboratory. Cr. 2
Prereq: BCH 701, PSL 752, PSL 753; consent of instructor. Experience in experimental pharmacology; methods and techniques employed in studying the effects of drugs on living tissue.

Physiology (PSL)

- 752. Cellular Pharmacology. Cr. 3**
Advanced presentation of basic drug actions as they affect cells, membranes and macromolecules.
- 753. Neuropharmacology I. Cr. 2**
Prereq: PHC 750. Synthesis and release of neurotransmitters, analysis of transmitter-receptor interaction and cellular response, emphasis on peripheral autonomic systems. Offered alternate years.
- 754. Neuropharmacology II. Cr. 3**
Prereq: PHC 753 and consent of instructor. Study of drug actions on control mechanisms in the central nervous system, with special emphasis on neuroendocrine and autonomic function. Offered alternate years.
- 755. Neurochemical Pharmacology. Cr. 3**
Prereq: general biochemistry. Biochemical features special to the nervous system with an emphasis on relating these to neuronal function in health and disease. Offered alternate years.
- 756. Neurochemical Pharmacology Laboratory. Cr. 1-2**
Prereq: consent of instructor. Laboratory work and readings on principles of microchemical methods specially useful to neurochemistry. Emphasis on enzymatic fluorometric (Lowry microchemical) and radioenzymatic assays.
- 757. Cardiovascular Pharmacology. Cr. 2**
Prereq: PHC 750 or consent of instructor. Modern concepts of the action of drugs on the heart and circulation with emphasis on molecular and biochemical mechanisms involved. Offered alternate years.
- 758. Biochemical Pharmacology. Cr. 3**
Prereq: introductory biochemistry and consent of instructor. Current topics in biochemical pharmacology. Offered alternate years.
- 759. Introduction to Clinical Pharmacology. Cr. 2**
Prereq: PHC 751, BCH 701. For students with serious interest in pharmacology or the clinical study of drugs.
- 760. Analytical Micromethods of Radioimmunoassay and Enzyme Immunoassay. Cr. 2**
Prereq: graduate standing and consent of instructor. Review principles of RIA, radio ligand binding and enzyme mediated immunoassays. Experience with RIA. Theory and technical pitfalls of EMIT, ELISA assays, computer analysis of data, PROTOL, RIANAL, QUAL and autoanal.
- 761. Analytical Toxicology. Cr. 2**
Prereq: PHC 750. Analysis of drugs and poisons in biological samples in conjunction with the symptomatology of poisoning, metabolic transformations and therapeutic procedures employed by the clinician.
- 770. Recent Developments in Pharmacology. Cr. 1-4(Max. 12)**
Prereq: PHC 751 or equiv. Selected topics and readings in pharmacology.
- 771. Individual Studies in Pharmacology. Cr. 1-5(Max. 16)**
Prereq: consent of instructor.
- 789. Seminar. Cr. 1-3(Max. 6)**
Prereq: written consent of departmental graduate office. Assigned readings and student presentation; faculty and outside speakers.
- 899. Master's Thesis Research and Direction. Cr. 1-8(8 req.)**
Prereq: consent of adviser.
- 999. Doctoral Dissertation Research and Direction. Cr. 1-16 (30 req.)**
Prereq: consent of graduate committee.
- 303. (M T 302) Hematology I: Hemostasis. Cr. 2**
Prereq: junior in medical technology program or consent of instructor. Material fee as indicated in *Schedule of Classes*. Provides theoretical information on hemostasis, coagulation and fibrinolysis. Basic study of blood forming organs and components of blood; explanation of basic hematological procedures.
- 313. (M T 312) Hematology I: Hemostasis Laboratory. Cr. 2**
Laboratory provides practical information on hemostasis, coagulation and fibrinolysis. Laboratory exercises relative to the basic study of the blood forming organs and the components of blood.
- 322. Fundamentals of Physiology. Cr. 4**
Prereq: consent of adviser; high school physics, chemistry, or physical science elective; BIO 103. Survey of fundamental physiological processes designed for upper-class undergraduate students.
- 719. (ANA 719) Neuroscience Survey. (PHC 719) (I M 719) (PSY 719) (BIO 719). Cr. 3**
Prereq: written consent of instructor. Interdisciplinary overview of principles of neurosciences.
- 720. Muscle Physiology. Cr. 2**
Prereq: physiology, biochemistry, pharmacology, or biology background. Present knowledge and current research approaches to understanding muscle function. Topics include muscle structure, biochemistry, and neuronal control in vertebrates and invertebrates.
- 740. Advanced Respiratory Physiology. Cr. 2**
Prereq: PSL 752, 753, and consent of instructor. Advanced lectures/demonstrations of gas exchange problems for computer simulation by students. Each year course will be devoted to one aspect of respiratory function, e.g., mechanics, gas exchange, regulation.
- 749. Clinical Physiology. Cr. 2-6**
Prereq: B.S. degree with introductory physiology and biochemistry or consent of instructor. Basic theoretical physiology for clinical nurses. Clinical conference workshops in addition to didactic lectures.
- 750. Developmental Physiology. Cr. 3**
Prereq: general physiology, embryology; consent of instructor. A study of organ physiology from the developmental viewpoint.
- 752. Basic Graduate Physiology Lecture. Cr. 5(Max. 10)**
Prereq: organic chemistry, introductory physics, biology background; current enrollment in graduate degree program or written consent of instructor. Material fee as indicated in *Schedule of Classes*. Functional mechanisms of the human body.
- 753. Basic Graduate Physiology Laboratory. Cr. 2(Max. 4)**
Prereq: enrollment in a graduate program in physiology or written consent of instructor; coreq: PSL 752. Material fee as indicated in *Schedule of Classes*. Experimental physiology of organ systems. Two semester course; two credits each semester.
- 755. Advanced Renal Physiology. Cr. 2**
Prereq: PSL 752 or equiv.; written consent of instructors. A detailed study of the physiological mechanisms promoting homeostasis of the body fluid volumes and ionic composition in the mammal.
- 756. Topics in Exercise/Applied Physiology. Cr. 3**
Prereq: PSL 752 or equiv. Lectures, seminars (student presentations of research papers), and select laboratory experiences.
- 759. Blood. Cr. 3**
Prereq: PSL 752, 753, or consent of instructor. Details of blood enzymology including hemostasis, blood coagulation, complement system, and fibrinolysis.

760. Advanced Cardiovascular Physiology. Cr. 2

Prereq: PSL 752. Basic principles of heart dynamics and control techniques in measurement of cardiac function.

762. Physiologic Anatomy. Cr. 3

Prereq: biology background preferred. Not open to graduate anatomy students. Basic concepts of anatomy as they relate to physiologic function. Intended to give an anatomy foundation for graduate level physiology courses.

764. Cellular Physiology I. Cr. 2

Correlations between ultrastructure, chemistry and functions.

765. Surgical Physiology. Cr. 4

Prereq: consent of instructor. Material fee as indicated in *Schedule of Classes*. Lectures and laboratory sessions devoted to the basic concepts of surgical principles and techniques related to experimental physiology.

766. Neurophysiology. Cr. 3

Prereq: PSL 752 and consent of instructor. Anatomy and physiology of the neuron and the mammalian nervous system. Correlations of central nervous system functions and electrophysiology.

767. Introductory Biostatistical Methods. Cr. 4

Prereq: a working knowledge of elementary algebra. Presentation of basic statistical techniques routinely used in the analysis of biomedical data. Practical use of a typical packaged statistical computer program (SPSS and/or MIDAS) incorporated into the problem-solving aspects of the course.

768. Endocrinology. Cr. 6

Prereq: PSL 752. A detailed emphasis on current research. Student participation encouraged; each student required to present a one hour lecture. (F).

772. Cellular Physiology II. Cr. 2

Correlations between ultrastructure, chemistry, and function. Interrelations of cells.

776. History of Physiology. Cr. 3

Prereq: consent of instructor. Survey of great men and great events in the historical development of the science of physiology.

778. Electrophysiological Techniques Laboratory I. Cr. 2

Prereq: PSL 752 or BIO 765 or equiv. or consent of instructor. Neurophysiological principles demonstrated through laboratory experiments. Extracellular and intracellular recording to study sensory mechanisms, central processing, properties of membranes, effects of neurotransmitters and other drugs.

779. Electrophysiological Techniques Laboratory II. Cr. 2-4(Max. 4)

Prereq: PSL 778 or written consent of instructor. Advanced electrophysiological experiments possibly including an independent project under the supervision of an instructor.

780. Basic Biomedical Electron Microscopy. Cr. 3

Principles and techniques of scanning and transmission electron microscopy including tissue preparation and handling.

781. Physiology and Biophysics of the Visual System. Cr. 2

Prereq: PSL 752 or equiv. and consent of instructor. Biophysical and electrophysiological aspects of visual function, from the receptor level up to the central nervous system level. Course designed for graduate students and advanced medical students; offered alternate years.

782. Biophysical Principles of Transport and Interfacial Processes in Membranes. Cr. 3

Prereq: PSL 752 or equiv., calculus, consent of instructor. Physico-chemical mechanisms of transport and interfacial processes in

biomembranes. Principles of electrophysiology demonstrated in laboratory demonstration. Course designed for graduate students and advanced medical students; offered alternate years.

783. (M T 702) Pathophysiology of Hemostasis. Cr. 2

Prereq: graduate of medical technology program or consent of instructor.

784. Seminar in Gastrointestinal Physiology. Cr. 2

Prereq: PSL 752; consent of instructor. For graduate and advanced medical students; each student presents one or two seminars based on current literature.

788. Special Problems in Physiology. Cr. 1-8(Max.8)

Prereq: consent of graduate officer; written plan of study. Topics individually arranged with faculty.

789. Seminar. Cr. 1-3(Max. 6)

Prereq: consent of instructor. For graduate students in physiology. Preparation and presentation of medical science related topics.

796. Arranged Research. Cr. 1-15(Max. 15)

Prereq: consent of graduate officer; written plan of study. Graduate level experiences in research techniques. Special research topics in specified areas arranged with individual faculty member.

899. Master's Thesis Research and Direction. Cr. 1-8(8 req.)

Open only to graduate students in physiology.

999. Doctoral Dissertation Research and Direction. Cr. 1-16(30 req.)

Open only to graduate students in physiology. Offered for S and U grades only.

Psychiatry (PYC)

701. Fundamentals in Psychiatric Research I. Cr. 3

Prereq: M.D. degree; completion of one-year internship and at least two years of residency in psychiatry. Introduction to the methodology of research from the point of view of the biological and behavioral sciences; initial application to personal research project.

702. Fundamentals in Psychiatric Research II. Cr. 3

Prereq: PYC 701. 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.

789. Seminar. Cr. 1

Prereq: M.D. degree and resident in psychiatry. Presentations by graduate staff, visiting lecturers and students.

790. Directed Study. Cr. 1-3(Max. 10)

Prereq: written consent of adviser and graduate officer; PYC 701 or 702. Study, including full literature review, of a problem of current relevance to psychiatry. Detailed guidance of adviser.

796. Research Problems. Cr. 1-3(Max. 10)

Prereq: consent of adviser; PYC 701 or 702. Preparation of protocols or schedules for data collection. The gathering of data in a field related to psychiatry; accurate and systematic recording.

899. Master's Thesis Research and Direction. Cr. 1-6(Max. 8)

Prereq: consent of adviser. The preparation in writing of a coherent, complete and reasoned thesis on a research project.

Radiology (RAD)

501. Radiological Physics I. Cr. 4

Prereq: PHY 218. Nature of radiation and its interaction with matter. Theory of dosimetry and instrumentation for detection of radiation. Principles of radiation protection. Applications of radiation in radiology and related problems.

502. Radiological Physics II. Cr. 4

Prereq: RAD 501. Continuation of RAD 501.

700. Physics of Diagnostic Radiology. Cr. 4

Prereq: RAD 501. 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.

701. Physics of Nuclear Medicine. Cr. 4

Prereq: RAD 502. The fundamental physics of nuclear transformations. Production and decay of radioisotopes. Nuclear emission radiations; their detection and measurement. Clinical applications of isotopes.

702. Physics of Radiation Therapy. Cr. 4

Prereq: RAD 704, 705 or consent of instructor. Physics of ionizing radiation as applied to cancer therapy.

703. Physics of Non-Ionizing Radiation: Diagnostic Radiology. Cr. 2

Prereq: RAD 700 or consent of instructor. The principles and application of ultrasound, infrared radiation and thermography.

704. Radiation Dosimetry. Cr. 4

Prereq. or coreq: RAD 501. Basic theory of dosage. Precise physical measurements and mathematical treatment of radiation and beams of particles. Theory, structure, and operation of precision instruments. Practical applications.

705. Advanced Radiation Dosimetry. Cr. 4

Prereq: RAD 704. Continuation of RAD 704 at an advanced level.

706. Applied Radiobiology in Radiological Science. Cr. 4

Prereq: RAD 701, 702, 703, 704 or consent of instructor. Fractionation, oxygen enhancement ratio, characterization of neutron beams and heavy particles for radiation therapy, radiosensitivity within cell division.

795. Directed Study Seminar. Cr. 1

Prereq: written consent of adviser and graduate officer. Presentations by graduate students, staff, visitors with emphasis on topics relevant to radiation biophysics and radiological health.

890. Special Problems in Radiation Biophysics. Cr. 1-3(Max. 3)

Prereq: consent of instructor. Independent study in advanced topics to be selected by the student in consultation with instructor.

899. Master's Thesis Research and Direction. Cr. 2-8(8 req.)

Prereq: consent of adviser.

SCHOOL DIRECTORY

Dean 1233 Scott Hall; 577-1335

Deputy Dean 1241 Scott Hall; 577-1444

Admissions 1269 Scott Hall; 577-1466

Affiliated Hospitals

Resident Program 1314 Scott Hall; 577-1353

Financial Aid 1112 Scott Hall; 577-1039

Graduate Studies 1206 Scott Hall; 577-1455

Records and

Registration 1272 Scott Hall; 577-1470

Student Affairs 1261 Scott Hall; 577-1463

Mailing address for all offices:

Wayne State University
School of Medicine
540 East Canfield Ave.
Detroit, Michigan 48201

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 those 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, 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.

The need to recognize and utilize instructional technology related to nursing resulted in the establishment of the Learning Resource Center in 1969. Here students enrich and/or supplement their learning through a variety of programs and activities with emphasis on self-paced and small group learning. An auxiliary to the Center is the Physical Assessment Learning Laboratory. This addition, begun in 1975, provides materials, activities and facilities for students to acquire skills presented in modular form in history-taking and physical assessment.

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 the need 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, the master's program in nursing was transported to the Upper Peninsula of Michigan in 1975 and to the west Michigan area in 1977 and in Saginaw in 1979.

A part-time outreach bachelor of science in nursing program for the employed nurse in the greater Detroit Metropolitan area is being offered by the College of Nursing through the College of Lifelong Learning.

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 creating, demonstrating, and evaluating 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 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 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/her optimum potential as an intelligent social being. Therefore, the student accepts the dignity and worth of mankind, 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 self-awareness, readily accepts responsibility for his/her actions and actively supports the goals of his/her 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/she assumes responsibility for learning. It is sufficiently flexible to enable each student to develop further his/her 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 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 interdisciplinary collaboration.

As University faculty, the faculty of the College of Nursing recognizes that its professional function extends beyond contributions to formal teachings. 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 baccalaureate program is approved by the Michigan State Board of Nursing, and graduates are admitted to the licensing examination for professional nurses in the State of Michigan. The baccalaureate and master's programs of the College are accredited by the National League of Nursing.

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.

The Wayne State University Student Nurse's Association: is a constituent of the Michigan Student Nurses' Association and the National Student Nurses' Association. This organization promotes professional nursing through educational programming, student activities, community involvement and legislative activities as appropriate. Membership is open to all students in the College of Nursing.

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, nursing fraternity established the Alpha Beta Chapter at Wayne State University in May, 1969. Scholarship, personality and character determine eligibility for membership.

The Alumni Association of the College of Nursing is composed of graduates, faculty 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.

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 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 an 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. 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 17.

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 are offered only to those students who are regularly admitted to the College of Nursing.

Students who have not been admitted to a degree program in the College of Nursing, Wayne State University, will be registered as non-matriculated students in the College of Lifelong Learning. *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.

FINANCIAL AIDS

The University Office of Scholarships and Financial Aids, Room 222, Administrative Services Building (see page 12), administers scholarships, grants, loans and emergency funds available to all University students and funds provided especially for College of Nursing students. Early application is encouraged.

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. These funds provide limited assistance for financially and academically qualified students. Most awards are in the form of no interest loans and are usually for no more than one semester's tuition. For information about these and other resources, the student should consult the Office of Student Services, College of Nursing.

Professional Nurse Traineeships

Funds *may* be available for full-time study under federal traineeships. The deadline date for filing applications is April 1. If available, awards are made in July or August. Applications are available in the Office of Student Services, College of Nursing.

Graduate-Professional Scholarships

Each year the University awards a number of tuition scholarships for students in graduate or professional degree programs. Application forms and deadline dates are available from the Graduate School, 352 Mackenzie Hall. Awards are contingent upon acceptance for full-time graduate study and full-time enrollment.

Other Sources of Financial Support

Graduate fellowships, teaching assistantships, and research assistantships may be available. For information contact the Office of Student Services, College of Nursing.

The National Research Service Awards Program has special nurse fellowships for pre- or post-doctoral students. Qualified students are urged to apply. Deadline dates are February 1, June 1, and October 1.

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, 111 Mackenzie Hall.

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. Applicants for undergraduate study in the College of Nursing are admitted based on the requirements listed below. In addition, all materials submitted to the College by the applicant or on the applicant's behalf will be evaluated. The College reserves the right to solicit additional information from the applicant. 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. Registered nurses who have been admitted to the College of Nursing must file a separate application for admission to the nursing major. At this time the student must choose between the on-campus program or the outreach program. Inquiries regarding admission and readmission to the College of Nursing and specific information not listed in this bulletin should be directed to the Office of Student Services, College of Nursing. Application forms may be secured from the Office of Student Services, College of Nursing.

Admission to the Nursing Major — Prerequisites

A. Satisfactory completion of thirty semester credits including the following courses or their equivalents:

BIO 100	.....	An Introduction to Life or
BIO 101	.....	Basic Biology I
BIO 220	.....	Introductory Microbiology
CHM 102	.....	General Chemistry I
CHM 103	.....	General Chemistry II
ENG 102	.....	Freshman Composition
PSY 101	.....	Introductory Psychology
SOC 200	.....	Understanding Human Society

In addition to the above, *registered nurse* students must also complete:

IHS 310	.....	Basic Mechanisms of Disease I
IHS 320	.....	Basic Mechanisms of Disease II
IHS 321	.....	Basic Mechanisms of Disease II-Laboratory (or equiv.)
PSY 240	.....	Developmental Psychology
NUR 212	.....	The Nurse and the Individual II

B. Grades of C or better must be achieved in all of the above courses; they may not be taken for Passed - Not Passed grades. A cumulative University h.p.a. of 2.00 or above must be maintained.

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 090.

D. A student must have a level of health which is consistent with meeting the objectives of the curriculum.

E. In addition to the above, *registered nurses* must show evidence of:

1. Licensure as a registered nurse in the State of Michigan.

2. Satisfactory completion of placement examinations in nursing by no later than the semester prior to that in which the student intends to begin the clinical nursing major.

3. Completion of the English Proficiency Examination by the spring testing period prior to fall term admission.

Health Requirements Following Admission

A. Students who are admitted to the College of Nursing are required to have a physical examination on file as designated by the College of Nursing. Students are to update the examination each year, including a TB skin test or chest x-ray.

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 assistant dean 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 College 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 professional nursing. 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.

Goals and Objectives of the Undergraduate Nursing Program

Human beings are continuously developing, influenced by biological, psychological, sociological and cultural factors. They respond as total systems to internal and external changes in environment in order to maintain dynamic equilibrium. It is the nature of this response which determines health or illness. Since people may require assistance in adaptation toward health, nursing as dynamic process is concerned with supporting those adaptations that they would make unaided if they had the necessary strength, will, knowledge, and/or other resources. In preparing nursing students to assist with this adaptation, the College has the following goals and objectives:

1. The student will be prepared as a professional nurse practitioner who is responsive to current health exigencies, and who is self-directed in meeting the evolving health care needs of the society.

2. The student will gain a general education in communication, the humanities, and natural and social sciences.

3. The program will enhance the student's personal development and promote her/his professional development so as to form a basis for continued professional growth.

The graduate of the baccalaureate program is expected to:

1. Practice nursing within the framework of human adaptation in the care of individuals, families, and groups across the health and age

continua.

2. Use the nursing process in nursing care of individuals, families, and other groups, across the health and age continua.
3. Accept accountability to self for personal and professional development, to the recipient for quality nursing care, and to the profession for improvement of professional nursing standards and practice.
4. Teach, supervise, guide and/or collaborate with, members of the health team to promote the health of individuals, families, groups, and communities.
5. Evaluate the interactive processes inherent in nursing practice.

General Education

A minimum of sixty-three credits must include:

Communication— English composition* and writing a scholarly paper (ENG 303).*

Natural Science— general biology*, Basic Mechanisms of Disease I* and II* with laboratory, microbiology*, inorganic* and organic chemistry* and biochemistry*, introductory* and developmental psychology*. (Biology and chemistry courses must include laboratories.)

Social Science— a minimum of three courses to include principles of American government, introductory sociology*, one advanced course in sociology.

Humanities— a minimum of two courses to include at least one in American or English literature.

Other— nutrition and electives.

Mathematics Qualification— The faculty requires the students to demonstrate their proficiency in mathematics.

Professional Education

For students admitted to the College of Nursing with sophomore standing a minimum of sixty-three credits in nursing is required for program completion.

Sophomore Year

	credits
NUR 200 — Basic Nursing Concepts.....	2
NUR 211 — The Nurse and the Individual I.....	6
NUR 212 — The Nurse and the Individual II.....	6
NUR 221 — Nursing Implications of Drug Administration.....	2
IHS 310 — Basic Mechanisms of Human Disease I.....	5
IHS 320 — Basic Mechanisms of Human Disease II.....	5
IHS 330 — Basic Mechanisms of Human Disease: Laboratory.....	1

Junior Year

NUR 311 — The Nurse and the Individual within the Family I.....	10
NUR 312 — The Nurse and the Individual within the Family II.....	10
NUR 327 — Perspectives in Nursing.....	3
ENG 303 — Writing the Research Paper.....	3
FAC 221 — Human Nutrition.....	3

Senior Year

NUR 411 — Nursing within a Microsystem.....	3-7
NUR 412 — Nursing within a Macrosystem.....	3-7
NUR 430 — Introduction to Research.....	2
NUR 434 — Senior Seminar I.....	2
NUR 435 — Senior Seminar II.....	2

An elective from the following (4 credits required in the same elective):

NUR 420 — Special Topics in the Care of the Physically Ill Adult.....	2-4
NUR 422 — Leadership in Nursing Service.....	2-4
NUR 426 — Research Process Applied to Health Problems.....	2-4
NUR 427 — Special Topics in Maternal and Child Nursing.....	2-4
NUR 428 — Special Topics in Psychiatric and Mental Health Nursing.....	2-4
NUR 429 — Special Topics in Community Health Nursing.....	2-4

For students who are registered nurses, a minimum of thirty-one advanced standing credits based on satisfactory completion of placement exams in nursing will be granted upon completion of the first semester of the nursing major-senior year.

Senior Year

The following curricula is for students who are Registered Nurses. Courses may be taken through the Outreach B.S.N. Program.

Fall Semester

	credits
* FAC 221 — Elements of Nutrition.....	3
NUR 411 — Nursing within a Microsystem.....	3-7
NUR 430 — Introduction to Research.....	2
NUR 434 — Senior Seminar I.....	2
Nursing elective.....	2

Winter Semester

* NUR 327 — Perspectives in Nursing.....	3
NUR 412 — Nursing within a Macrosystem.....	7
NUR 435 — Senior Seminar.....	2
Nursing elective.....	2

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 126 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 108 (Writing Workshop). Students taking the English Proficiency Examination must apply to Testing and

* Grade of 'C' or better must be attained.

* May be taken prior to the senior year.

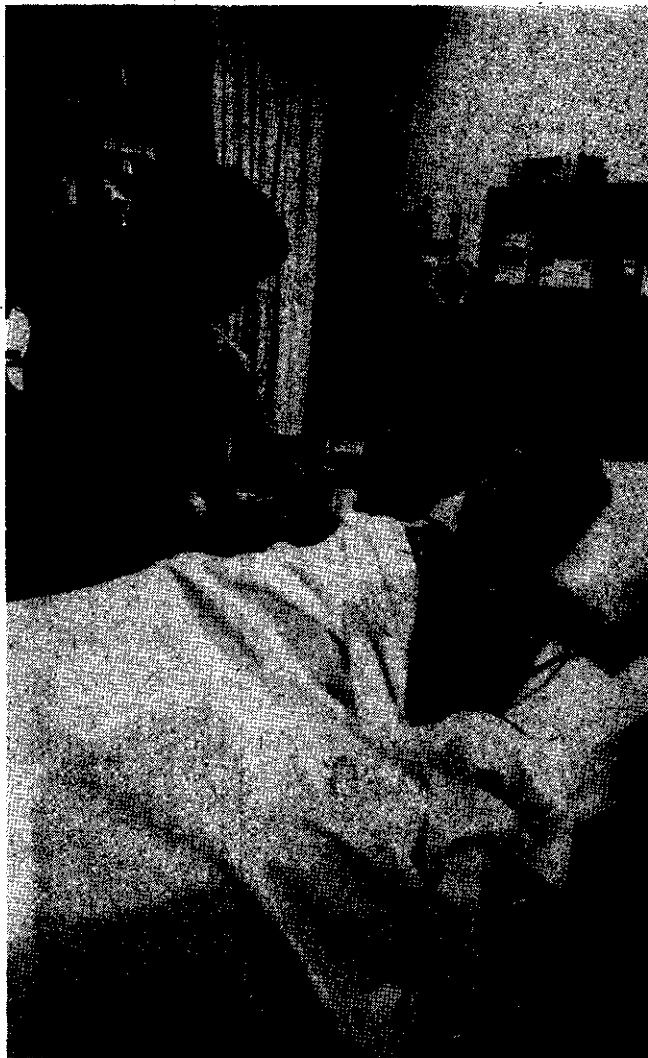
Evaluation, University Counseling Services; the fee is \$7.00.

University Requirement in American Government: See page 13.

Residence: The student must earn the last thirty credits prior to graduation at Wayne State University. A minimum of twenty-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 reevaluation.

Application for Degree: See page 17.



UNDERGRADUATE 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.

Registration

Each student is required at the beginning of each semester 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 students 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.

Health Requirements

Each student is to have an admission physical examination on file as designated by the College of Nursing. The student is to have a yearly tuberculin skin test and/or chest X-ray. Students may not attend clinical courses if health clearance is not on file.

Liability Insurance

The minimum amount of liability insurance is \$200,000/\$600,000 to cover the duration of the student's nursing studies. Each student is to present a copy of his/her professional liability and malpractice insurance policy to the Office of Student Services, no later than the first day of classes.

Course Material Fee Cards (CMFC)

The student must purchase course material fee cards for certain courses identified in the *Schedule of Classes*. The cards must be presented to the Office of Student Services (or elsewhere as designated) by no later than the last day of final registration each semester in order to begin the course(s). Holds will be placed on graduation or subsequent registrations if fee cards are not submitted.

Attendance

Regularity in attendance and performance is necessary for success in college work. 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 faculty member.

Scholarship

1. All students must maintain a satisfactory (2.00) honor point average: a) cumulative (general education and nursing at 2.00); and b) professional (nursing only at 2.00).
2. Students must achieve a 2.00 h.p.a. in each nursing course. A student may not continue in subsequent courses for which the failed course is a prerequisite until a minimum of 2.00 has been achieved.

3. A grade of 'D' in a nursing course is unsatisfactory for progression.
4. Students may repeat a nursing course, as space is available, only one time to raise the grade to the 2.00 level or above. (Withdrawals from nursing courses after the twelfth week of the semester will be interpreted as the student's having taken the course for the purpose of calculated repeats of the course.)
5. Students may repeat a maximum of three nursing courses within the program.
6. No nursing course for which a student has received a passing grade may be repeated without written approval of the Assistant Dean for Undergraduate Studies.
7. A student receiving an 'E' grade in either the theory or the clinical portion of any nursing course will fail the course.
8. Grades of 'I' received in course(s) prerequisite to courses in the subsequent semester must be completed by no later than the second week of class of the following semester.
9. Students must achieve at least a grade of 'C' in Basic Mechanisms of Disease I and II or equivalent prior to entry in any course for which this is a prerequisite.

Probation

Probationary status is a warning to a student to improve his/her academic performance in order to remain in the program.

1. A student is placed on probation if he/she does not maintain a minimum cumulative honor point average of 2.00. The final grade report will carry official notice of academic probation.
2. A student is placed on probation if he/she does not maintain a minimum honor point average of 2.00 in the nursing courses. The Office of Student Services notifies the student of professional probation.
3. An honor point average must be returned to a minimum of 2.00 to remove probationary status. Probationary status must be removed by the time the student has earned thirty credits subsequent to having been put on probation.
4. Students on probation are not eligible to represent the College in any student activity.

Exclusion

1. A student who fails to satisfactorily complete a nursing course after two attempts will be excluded from the College.
2. A student will be excluded if he/she has had to repeat more than three nursing courses.
3. A student who fails to remove probationary status following thirty semester credits will be excluded.
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 irresponsible performance in field practice assignments.

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 100 credits in residence, 3.4 if between 60 and 99 credits; High Distinction—an honor point average of 3.6 if the candidate has earned at least 100 credits in residence, 3.7 if between 60 and 99 credits.

Dean's List and Honor's List

Students completing twelve semester credits in study at Wayne State University are eligible for appointment each semester. The semester honor point average at Wayne State must be 3.75 or above in order to qualify for the Dean's List. The Honor's List requires a minimum honor point average of 3.50. Lists of students on the Dean's List and Honor's List will be posted in the College of Nursing.



GRADUATE STUDY

For complete information regarding graduate rules and regulations, students should consult the Graduate School section of this bulletin, beginning on page 18. The following additions and amendments pertain to the College of Nursing.

Admission

All new applicants must submit two application forms, the *Application for Graduate Admission* and 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 in the upper division course work. A conditional 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) Aptitude section of Graduate Record Examinations: a composite score (verbal and quantitative) of 800 for most majors; (2) minimum of one year's experience as a registered nurse in area of interest for most majors; (3) professional competence as documented by references; (4) current registered nurse licensure or national registration for international applicants; (5) a personal statement of goals for graduate study; (6) an interview with an adviser in the clinical major of choice. There may be additional requirements in each of the majors. Deadline dates for filing applications are the same as for the Graduate School of the University, but early filing by prospective full-time students is encouraged since some of the majors may be filled by the fall deadline. Unless otherwise advised, anyone planning to attend full-time should begin in the fall semester. Applications for part-time study may be submitted at any time.

Applicants who have not completed an N.L.N. accredited baccalaureate nursing program will be considered for regular admission only after successfully passing the N.L.N. baccalaureate achievement tests at the 50th percentile. Since transcripts are evaluated individually to determine whether additional examinations or prerequisite courses will be necessary before admission, it is advisable for applicants to seek early counseling from the Office of Student Services. Opportunities are provided for applicants with 3.0 honor point averages to take challenge examinations in nursing and general education.

In some instances, an applicant for the master's program may be admitted as a pre-master's student. In this classification, a student may register for a maximum of nine graduate credits; he/she may not register for clinical nursing courses. Enrollment as a pre-master's student does not guarantee admission to the master's program.

Applications for the doctoral program in nursing are accepted throughout the year. The following criteria are considered in admission decisions: (1) a bachelor's or master's degree in nursing or the equivalent; (2) current licensure as a registered nurse; (3) an h.p.a. of 3.0 in undergraduate study and 3.5 in graduate study (twelve or more semester credits); (4) a combined verbal and quantitative (Graduate Record Examination) aptitude score of 1,000; (5) one year of professional nursing experience; (6) three references from nurse faculty, nurse researchers, and/or other professional colleagues, preferably doctorally prepared, who can evaluate the applicant's clinical competence, scholarship and aptitude for research; (7) statement of professional goals, research interests, ideas, beliefs, and concerns about clinical practice; (8) two scholarly papers which may

have been completed for course work, a master's thesis or publications; (9) interviews with two graduate faculty members.

Applicants who reside more than 300 miles from campus may be interviewed by telephone if the applicant wishes. Applicants for admission should have materials in by February 1. Admission decisions, made by formal decision of the doctoral committee, reflect careful consideration of the applicant's complete record and the resources of the College.

A prospective doctoral student who wishes to begin study earlier may be admitted as a post master's student with prior approval of the Graduate Officer of the College. In this classification, a student may register for a maximum of nine credits. Enrollment as a post-master's student does not guarantee admission to the doctoral program.

Readmission

1. The student who withdraws from the program in good standing for one or more years should contact the Office of Student Services, College of Nursing, two semesters prior to the semester for which enrollment is desired. Following a review by the Office of Student Services, the student will be informed of the steps needed to qualify for readmission. Preference for enrollment in required clinical courses is given to current students. Therefore, readmission may be delayed.
2. The student who has been asked to withdraw may apply for readmission to the master's program through the Graduate Admissions and Scholastic Policy and Review Committee.
3. The College of Nursing reserves the right to revalidate all credits in the major which are over three years old or any other credits earned at Wayne State University which are between six and ten years old. Such authority rests with the Graduate Officer of the College of Nursing.

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 health care.

— Program of Study

The curriculum in the M.S.N. program is two academic years in length, or 40-48 credits. Each student elects a *clinical* major (17-24 credits), a *cognate* or related science sequence (6-9 credits), a *research* sequence (9-14 credits) and a minimum of eight credits of *electives* or a *minor* sequence. Students may elect a minor (8 credits) in nursing administration, teaching, or gerontology. Other course sequences offer concentrated study in special nursing care problems, e.g., the developmentally disabled or rehabilitation. Students should inquire about possible additional offerings. All programs are subject to

periodic revision. There is opportunity for part-time study.

Clinical Majors

Community Health Nursing Department Community Health Nursing

The Community Health Nursing major is based on a multidimensional approach to the prevention, causation, and control of health problems. The primary focus is the science of health in complex systems: the promotion, preservation and restoration of health in families, groups, and communities.

The Community Health Nursing major is designed to prepare the student to assume responsibility for the assessment of health status, determination of health needs, implementation of health planning, and the provision of health care services. Nurses are prepared to work alone or in collaboration with other professional workers and consumers to provide services to individuals, families, groups, and communities.

Cognates: Adviser approved elections from one public health science area.

Major Requirements

	<i>credits</i>
NUR 651 — Organization & Change in Health Care Services.....	2
NUR 710 — Theoretical Foundations of Nursing Practice.....	2
NUR 751 — Advanced Community Health Nursing.....	3
NUR 752 — Nursing Care of Families.....	2
NUR 753 — Nursing Care of Groups.....	2
NUR 754 — Nursing Care of Communities.....	2
NUR 755 — Interventions for Community Health Nursing.....	2
NUR 756 — Change Strategies in Community Health Nursing.....	3
NUR 785 — Seminar in Clinical Nursing.....	2
C M 724 — Epidemiology.....	2

Maternal-Child Health Department Health Care of Women

The aim of this program is to prepare the graduate nurse for expanded roles in the health care of women of all ages. Skills are developed in physical assessment and clinical management of common acute and chronic health problems which women and their families experience. Emphasis is placed on the utilization of substantive knowledge available which guides nursing care of women in the child bearing period, of newborns, of adolescents, and of aging females. Additionally, opportunities are provided for students to explore innovative approaches to the development of a clinical specialist role in the care of women.

Cognates

	<i>credits</i>
BIO 581 — Embryology.....	3
<i>and</i>	
BIO 585 — Human Heredity.....	3
<i>plus one of the following</i>	
FAC 671 — Human Development: Infancy.....	3
FAC 672 — Human Development: Early, Middle and Late Childhood.....	3
FAC 673 — Human Development: Adolescence, Adulthood, and Aging.....	3
PSY 746 — Developmental Psychology of Adolescence.....	3
SOC 640 — Family Theories and Research.....	3

Major Requirements

	<i>credits</i>
NUR 554 — Assessment.....	3
NUR 651 — Organization and Change of Health Care Services.....	2

NUR 710 — Theoretical Foundations of Nursing Practice.....	2
NUR 721 — Nursing Care of Women.....	1
NUR 722 — Perinatal Nursing.....	5
NUR 723 — Adv. Clin. Prac. Health Care of Women I.....	4
NUR 724 — Adv. Clin. Prac. Health Care of Women II.....	3
NUR 785 — Seminar in Clinical Nursing.....	2

Nursing Care of Children and Adolescents

The objective of this major is to prepare clinical nurse specialists for nursing of children (birth through adolescence) and their families in traditional and alternative health care settings. Emphasis in the program is on the development of clinical expertise in nursing of children, adolescents and their families; collaboration with families and health professionals and clinical nursing research. Clinical experiences are provided in a variety of community and health care settings with individuals and groups. Skills in systematic assessment of the child, family and their environment are developed within a nursing conceptual framework.

In the second year of the program, the students elect clinical nursing experiences to prepare themselves in clinical nurse specialist roles in primary care, or acute/chronic care of children (birth through adolescence) and their families.

Cognates

	<i>credits</i>
BIO 581 — Embryology.....	3
<i>or</i>	
BIO 585 — Human Heredity.....	3
<i>plus one of the following</i>	
FAC 671 — Human Development: Infancy.....	3
FAC 672 — Human Development: Early, Middle and Late Childhood.....	3
FAC 684 — Developmental Assessment of the Young Child.....	3
PSY 642 — Psychological Development in Infancy.....	3
PSY 746 — Developmental Psychology of Adolescence.....	3
PSY 745 — Psychology of Social Development.....	3

Major Requirements

	<i>credits</i>
NUR 554 — Assessment.....	3
NUR 710 — Theoretical Foundations of Nursing Practice.....	2
NUR 731 — Nursing of Children and Adolescents I.....	2
NUR 732 — Nursing of Children and Adolescents II.....	3
NUR 733 — Nursing of Children and Adolescents III.....	4
NUR 734 — Nursing of Children and Adolescents IV.....	4
NUR 753 — Nursing Care of Groups.....	2
NUR 785 — Seminar in Clinical Nursing.....	2
PSL 750 — Developmental Physiology.....	3
NUR 651 — Organization and Change of Health Care Services.....	2

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 care of the physically ill adult. Focus is on the adult with existing or potential impairment of self-help ability. Learning experiences are provided which will enable the student to develop skills in systematic assessment and management of the physically ill adult.

The content of this program is derived from knowledge of behavioral and biological sciences and existing theories of nursing practice. These provide the basis for understanding altered functions and guidance for restoration of optimum levels of health. Attention is given to the individual's response to antagonistic forces from the internal and external environment.

Cognate: PSL 752, 7 credits required.

Major Requirements

	<i>credits</i>
NUR 554 — Assessment	3
NUR 710 — Theoretical Foundations of Nursing Practice.....	2
NUR 712 — Adult Clinical Nursing I	2*
NUR 713 — Adult Clinical Nursing II.....	4
NUR 714 — Adult Clinical Nursing III.....	4
NUR 785 — Seminar in Clinical Nursing.....	2
NUR 651 — Organization and Change of Health Care Services.....	2
or	
NUR 754 — Nursing Care of Communities.....	2
and	
NUR 753 — Nursing Care of Groups.....	2
or	
PSY 563 — Group Dynamics.....	3

Primary Care Nursing—Adult

This major prepares the clinical nurse specialist in primary care of adults. Primary care begins with the client's first contact with the health care provider and includes the assumption of longitudinal responsibility for health management and coordination of care. Opportunity is provided to study the theoretical foundations of nursing practice with the development of practice models of primary care. Systematic history taking and physical examination skills are taught as a basis for nursing management. Emphasis is placed on the development of clinical judgment in health promotion activities as well as in the nursing management of acute and chronic health problems. Clinical practicum in primary care is implemented with emphasis on planning and evaluation of care. Theory and skills for consultation and collaboration with clients and other health care providers are also provided.

Cognate: PSL 752, 7 credits required.

Major Requirements

	<i>credits</i>
NUR 554 — Assessment	3
NUR 555 — Advanced Assessment.....	1
NUR 710 — Theoretical Foundations of Nursing Practice.....	2
NUR 715 — Clinical Judgment in Nursing I.....	1
NUR 716 — Clinical Judgment in Nursing II.....	3
NUR 717 — Adult Primary Care I.....	4
NUR 718 — Adult Primary Care II.....	4
NUR 754 — Nursing Care of Communities.....	2
NUR 785 — Seminar in Clinical Nursing.....	2
NUR 752 — Nursing Care of Families.....	2
or	
NUR 753 — Nursing Care of Groups.....	2

Nursing Systems Department
Institutional Epidemiology

The theory and techniques necessary for the surveillance, control and prevention of infections are learning experiences included in this clinical major. Epidemiological methods are used for nursing intervention in health care institutions. Interrelationships between host, environment and agent are stressed. Application of the knowledge of the natural history of infectious diseases is accomplished through the exploration of methods and application of medical microbiology. A thesis is required in order to demonstrate competence of the scientific investigation of a problem relevant to the nurse infection control coordinator.

Cognates:

BIO 523 — Environmental Microbiology.....	<i>credits</i> 3
IM 551 — Microbiology & Immunology.....	6

Major Requirements

	<i>credits</i>
NUR 651 — Organization and Change of Health Care Services.....	2
NUR 705 — Institutional Epidemiology.....	4
NUR 706 — Field Practice in Institutional Epidemiology.....	4
NUR 770 — Teaching Concepts for Practitioners of Nursing.....	3
NUR 785 — Seminar in Clinical Nursing.....	2
C M 724 — Epidemiology.....	2

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. A special sequence in Public Mental Health Nursing provides nurse practitioners with advanced theoretical and clinical preparation in the care of clients served by the publicly funded mental health system; especially those clients who are diagnosed as having chronic psychiatric disorders.

Supervised clinical experiences are offered in community mental health centers and/or other community-based programs dealing with current mental health issues.

Cognates: Adviser approved elections from the behavioral sciences.

Major Requirements

	<i>credits</i>
NUR 710 — Theoretical Foundations of Nursing Practice.....	2
NUR 749 — Human Sexuality.....	2
NUR 760 — Adult Psychiatric-Mental Health Nursing-Individuals.....	6
NUR 762 — Psychiatric-Mental Health Nursing with Groups.....	4
NUR 763 — Psychiatric-Mental Health Nursing with Families.....	3
NUR 764 — Community Mental Health Nursing.....	3
NUR 785 — Seminar in Clinical Nursing.....	2

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. A special sequence in Public Mental Health Nursing provides nurse practitioners with advanced theoretical and clinical preparation in the care of clients served by the publicly funded mental health system; especially those clients who are diagnosed as having chronic psychiatric disorders.

Cognates: Adviser approved elections from the behavioral sciences.

Major Requirements

	<i>credits</i>
NUR 710 — Theoretical Foundations of Nursing Practice.....	2
NUR 749 — Human Sexuality.....	2
NUR 761 — Child and Adolescent Psychiatric-Mental Health Nursing.....	6
NUR 762 — Psychiatric-Mental Health Nursing with Groups.....	4
NUR 763 — Psychiatric-Mental Health Nursing with Families.....	3
NUR 764 — Community Mental Health Nursing.....	3
NUR 785 — Seminar in Clinical Nursing.....	2

— Research Sequence

Each student must elect a series of courses which will prepare him/her to be competent in the utilization of research findings. To develop these skills, the student completes courses in inferential statistics and research methods in nursing before conducting a study which includes at least analysis of data.

Sequence Requirements: (9 credit minimum)

	<i>credits</i>
NUR 701 — Research in Nursing.....	3
EER 763 — Fundamentals of Statistics (or equiv.).....	3

plus one of the following:

NUR 798 — Field Study.....	3-4
NUR 796 — Research Practicum.....	3-4
NUR 899 — Master's Thesis Research and Direction.....	8

— Electives

Students may choose to complete their eight credit elective requirements by electing a minor, an area of concentration or eight graduate credits of their choice.

— Minors (8 Credit Minimum)

Teaching in Nursing

This minor is designed to introduce master's level practitioners to the theory, process and methods of curriculum design and student evaluation. A field practice experience under the guidance of a master teacher is required.

Requirements

	<i>credits</i>
NUR 771 — Curriculum Theory Development in Nursing.....	3
NUR 772 — Process of Educational Program Planning in Nursing.....	3
NUR 773 — Field Practice in Clinical Teaching.....	2-6

Leadership and Administration in Nursing

This minor is designed to prepare master's level clinical practitioners for administrative responsibilities in nursing service. Course content includes administrative and organizational theories as they apply to health care organizations. Special emphasis is placed on the development of the knowledge and skill necessary to manage personnel systems. A field practice experience is required.

Requirements

	<i>credits</i>
NUR 775 — Administrative Process in Nursing.....	3
NUR 776 — Personnel Development.....	3
NUR 777 — Field Practice in Nursing Administration.....	2-6

Gerontological Nursing

This clinical minor focuses on the unique aspects of the nursing care of the geriatric patient. Required courses focus on the identification of physical and mental health needs of the elderly and the resulting adaptive and pathological conditions. Particular attention is paid to the adequacy of community resources, public programs and gerontological nursing research.

Requirements

	<i>credits</i>
NUR 740 — Gerontological Nursing.....	3
NUR 741 — Psychosocial Aspects of the Aged.....	3
NUR 742 — Seminar: Research in Gerontological Nursing.....	2

— Areas of Concentration

Several series of courses have been developed to prepare master's level practitioners with special knowledge about specific clinical practice problems or clients who have special needs. Sequences offered are subject to change. Interested students should inquire about availability of current offerings.

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 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.

Areas of Study

Minimum Graduate Credits

Clinical Nursing.....	18
Nursing Seminars.....	12
Related Discipline.....	15
Research Methodology and Statistics.....	9
Thesis, Practicum, or Field Study.....	4
Electives.....	2
Dissertation.....	30
Total:	90

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 permitted since the program of study facilitates completion of requirements for the M.S.N. degree while the student moves towards the Ph.D. degree. The student has opportunities for concurrent registration in courses in advanced clinical nursing and in related sciences which permit 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.

Specialist Certificate Programs

These programs are 20-22 credits beyond the master's degree. Programs have been planned to meet a special need and have been approved by the University's Graduate School for the awarding of a Specialist Certificate. Since a maximum of nine credits, taken as a post-master's student, may be transferred to the doctoral plan of work, students who are interested in the Ph.D. program should explore this option before or soon after beginning a certificate program. Specialist Certificate programs are subject to change. For further information contact the Office of Student Services, College of Nursing.

— Nursing Administration

This twenty-two credit program leading to a Specialist Certificate in Nursing Administration is designed to prepare nurses for top level administration positions in nursing service organizations in acute care, long term care, ambulatory or home health care agencies; schools of nursing and professional membership organizations. The program includes courses pertaining to administrative processes, personnel development, labor relations, organizational analysis and design, health care policy, financial and managerial accounting, health economics, and legislative processes. Programs of study are individually planned according to the applicant's background and goals. This is a part-time program developed specifically to accommodate employed nurses.

GRADUATE 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.

Registration

Each student is required at the beginning of each semester 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*. A minimum of eight credits in graduate courses constitutes a full-time load for graduate students. However, ten credits in graduate courses constitute a minimum full-time program for graduate students who are meeting residence requirements in the Ph.D. program. After the plan of work is approved a student may sign his/her own registration form, but the student is required to obtain the signature of his/her major adviser for all changes in elections.

Professional Licensure and Liability Insurance

Graduate students must be registered to practice nursing in Michigan and have professional liability and malpractice insurance before registering for courses involving field practice. The minimum amount of liability insurance is \$200,000/\$600,000. Each student is to present a copy of his/her professional liability and malpractice insurance policy to the Office of Student Services (or elsewhere as designated by the College) no later than the last day of final registration in order to begin the course(s).

Health Requirements

Each student is required to have an admission physical examination on file in the University Health Services (or elsewhere as designated by the College). The student is to have a yearly tuberculin skin test and/or chest X-ray. Students may not be in clinical courses unless clearance is on file.

Course Material Fee Cards (CMFC)

The student must purchase course material fee cards for certain courses identified in the *Schedule of Classes*. The cards must be presented to the Office of Student Services (or elsewhere as designated by the College) by no later than the last day of final registration each semester in order to begin the course(s). Holds will be placed on degree approvals and/or subsequent registrations if fee cards are missing.

Plan of Work

In consultation with an adviser the student develops and files a *Plan of Work* upon completion of ten to fifteen graduate credits at Wayne State University. All prerequisites must be completed before filing the *Plan*. A student must have a minimum of 3.00 h.p.a. in order to have a *Plan of Work* accepted by the Graduate Officer. Once the *Plan of Work* has been approved by the Graduate Officer the student may sign his/her own program authorization for registration. Each *Plan* must

include the course requirements for the major and intended degree.

Scholarship

The graduate grading system is intended to reflect high standards of critical and creative scholarship. The policies for academic scholarship for graduate students are listed below.

1. A student may repeat one course one time. A course may be repeated only if the student has received less than a B-.
2. A grade of less than a 'C-' in any clinical (client-based) course automatically means that the student may not continue in the program.
3. A grade of 'C-' or better in any course must be achieved before the student may continue in sequential courses.
4. Students must have a minimum of a 3.00 h.p.a. in order to be awarded a graduate degree. Any student achieving less than a 3.00 average at any point in the program must achieve a 3.00 h.p.a. or better within the next twelve credits. Failure to meet the above stipulations means that the student will be dropped from the program.
5. Any student conditionally admitted must achieve a 3.00 h.p.a. within the *first eight Nursing* credits in 600 (or above) level courses. The student must have an overall 3.00 h.p.a. in order to be transferred from conditional to regular status.
6. Students who have ten credits of less than 'B-' work in graduate courses may not continue in the program. For students who repeat a course in which they initially received less than a 'B-' or better, the first grade will not count toward the number of allowable credits of 'C' or lower grades (the latter applies only to the Master's program).
7. 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.

Attendance

Regularity in attendance and performance is necessary for success in college work. Each faculty member at the beginning of the course will announce his/her attendance requirements. Each student is 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 faculty member.

COURSES OF INSTRUCTION¹ (NUR)

200. Basic Nursing Concepts. Cr. 2

Introduction to interactive processes including communication techniques, problem solving, teaching/learning concepts. Conceptual framework; components of nursing process. Basic concepts of professionalism. Introduction to group process and dynamics.

211. The Nurse and the Individual I. Cr. 6

Prereq. or coreq: NUR 200 and/or PSY 240; NUR 221; and IHS 310 or IHS 320; IHS 321. Material fee as indicated in *Schedule of Classes*. Introduction to individual adaptive behavior. Beginning skills in psychosocial assessment of people in community settings. Implications for nursing care through use of the nursing process.

212. The Nurse and the Individual II. Cr. 3-6

Prereq. or coreq: NUR 200 and/or PSY 240; NUR 221; and IHS 310 or IHS 320; IHS 321. Material fee as indicated in *Schedule of Classes*. Introduction to basic adaptive/maladaptive physiological responses of individuals. Development of skills in physical assessment of people. Implications for nursing care through use of the nursing process.

221. Nursing Implications of Drug Administration. Cr. 2

Emphasis on the clinical application of content related to the effects of various classes of drugs and the response of patients. Concepts of drug and solution calculations.

311. The Nurse and the Individual Within the Family I. Cr. 10

Prereq: NUR 211, 212, 221; prereq. or coreq: ENG 303. Material fee as indicated in *Schedule of Classes*. Nursing in the maternity cycle and nursing of all age groups with minimal to complex health deficits; consideration of the influence of health problems in the family during hospitalization and at home.

312. The Nurse and the Individual Within the Family II. Cr. 10

Prereq: NUR 311; prereq. or coreq: FAC 221. Material fee as indicated in *Schedule of Classes*. Continuation of NUR 311.

327. Perspectives in Nursing. Cr. 3

Historical development underlying current trends in nursing practice, education and research. Analysis of current issues in the profession of nursing.

330. Pathophysiology Related to Nursing Practice. Cr. 2

Prereq: at least two semesters in anatomy and physiology courses, including a laboratory or equiv. No credit after IHS 310 and IHS 320. Pathophysiologic process as related to normal physiology, signs and symptoms of disease, laboratory tests. Biophysical component of individual as used in the nursing process.

411. Nursing of Individuals, Families and Groups Within a Microsystem. Cr. 3-7

Prereq: senior standing. Material fee as indicated in *Schedule of Classes*. Nursing care supporting the adaptation of individuals, families and groups as microsystems with complex health needs. General systems theory; the dynamics of the family system and other small groups; influence of values and sanctions on the adaptation of families and small groups.

412. Nursing of Individuals, Families and Groups Within a Macrosystem. Cr. 3-7

Prereq: NUR 411. Material fee as indicated in *Schedule of Classes*. Nursing care supporting the adaptation of individuals and groups with complex health needs within the community and health care

¹ See page 633 for interpretation of numbering system, signs and abbreviations